IDEAS THAT IMPACT
WHERE TECHNOLOGY AND SOCIAL INNOVATION BRIDGE THE GAP

NASSCOM®
Social Innovation Forum 2016
A NASSCOM Foundation Initiative
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One thing that has created the biggest impact on mankind is technology. Over the decades, technology has changed the way we live and work. Technology has made many things possible; from air travel to talking over the phone, from email to pacemakers, these achievements are countless. Technology, which was a premium and luxury a few decades back, has become the biggest asset for society over time. Today, technology has become a social equalizer and is helping the bottom of the pyramid communities access essential services.

The digital age has created disruptions in every industry and will bring more changes as we move forward. In a country like India, it is delightful to see such disruptions benefiting the masses. From banking transactions to utility bills payment to booking railway tickets, everything is happening in a click. This has ushered in information, efficiency and access to a major section of our society. Now a student in the far corner of our country can complete a certificate course from a top US university, and a doctor seated at his clinic in a metro city can provide consultation to a heart patient in a rural area by looking at the diagnostics over his mobile. Such innovative examples are increasing every day and this is the way forward for India.

The government is also running ambitious programs like Digital India, Make in India and Skill India, which aim to create more jobs and transform India for the digital age. While the government does its bit, we as an industry and individuals need to contribute our efforts to make the vision of a better India turn into reality.

In recent years, I have seen a significant increase in CSR activities across India and am sure you are able to see their impact around you. While we all welcome CSR, I feel a sense of ownership towards a particular cause can further help the industry go beyond their CSR and make a bigger impact.

On another side, I see a new breed of enthusiasts and confident Indian Startups who are ready to work at grass root level and are not shy of using technology to its best. These startups have used technology to implement frugal engineering and increase affordability for the common man in the areas of education, healthcare and agriculture. Today, India ranks 3rd in terms of Startups and this is just the tip of the iceberg.

NASSCOM Social Innovation Forum (NSIF) is a NASSCOM Foundation initiative to recognise the change created by leveraging technology for social causes. It is an outstanding platform which recognises the efforts of these extraordinary people who bring positive changes to the lives of ordinary people.

Through this publication, NSIF intends to create awareness about the various efforts that address social causes, and share with you some inspiring success stories along with industry comments, to make firm a vision to join this wave of change which is inclusive and diverse.

I am sure you will enjoy reading this publication and will share it with many others to spread the joy of creating impact where it is required the most.
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NSIF Innovators 15-16- NASSCOM Social Innovation Forum
India’s diversity leads to a diverse range of problems. Inequality in income, in opportunities, in the availability of services such as education and healthcare, are still realities that we are grappling with. Correcting these gaps, thus needs a diverse range of solutions, efforts and initiatives that can reach far corners of the country, be accessed easily by citizens and tracked by development agencies and the government.

In the Indian social enterprise sector, represented by both Not-for-Profit and For-Profit, social or inclusive business has been at the forefront of the techno-social innovation movement, creating products, solutions and processes with the aid of information communication technology (ICT) to address local and national level gaps in education, health care, skills building, livelihood and public utilities.

The NASSCOM Social Innovation Forum, is NASSCOM Foundation’s platform to recognise and support innovative solutions that create sustained social impact. For over eight years, the Forum has identified, honoured, supported and nurtured ICT based social innovations and celebrated the people behind them. With support from organisations such as Mphasis and Genpact, the Forum provides catalytic grants and mentoring support to up and coming innovators and entrepreneurs, helping them build more impactful solutions to achieve development goals.

This publication is the second edition in the Ideas that Impact series, showcasing some of the very best solutions that are a part of the NSIF network. The book takes a closer look at the top few projects, selected from the hundreds of innovations that competed for the honours at NSIF this year in the following thematic areas:

**Primary and Secondary Education** – One of the key pillars of Government of India’s Digital India mission is to revolutionise education through technology. E learning solutions, interactive content developed in the form of games, school management systems and solutions to connect parents to teachers are some of the solutions that have been developed by Indian innovators. Web based solutions form one third of the education innovations in NSIF 2016 and mobiles are used in around 23 percent of the solutions. NGOs deploy most of these solutions in municipal and government aided schools and in remedial classes, accounting for 48 percent of education innovations.

**Skills and Employment** – The need for skilling the youth in the country is a national priority and the Government has set a goal of making 500 million youth employable by 2022. With digital content in the form of videos and animation, training is being provided for skills and the Government has set a goal of making 500 million youth employable by 2022. With digital content in the form of videos and
that can be used for self-employment. Online and voice based career counselling, and portals that connect employers with jobseekers are some of the more popular innovations that promote employability. More than half of the NSIF 2016 innovations in this theme were web based.

Accessibility – India is home to over 60 million persons with disability. With lack of Government support, access to assistive technologies and expensive treatments, disability has remained a largely unaddressed social challenge. Innovators are creating hardware based solutions or products that can assist in mobility for PwDs. There an increased focus in making digital content accessible. Around 44 percent of the innovations in the theme were proposed by youth innovators – demonstrating that this is a critical area of focus for upcoming entrepreneurs. 50 percent of the solutions were hardware devices or products.

Healthcare – The availability of quality healthcare remains a struggle for a majority of India’s population. A majority of innovations address this gap by connecting rural patients with specialists and by creating effective systems for communication between various stakeholders involved. Solutions are also increasingly addressing preventive healthcare needs by spreading awareness on sanitation, nutrition and good health practices. NGOs remain the biggest implementers of healthcare innovations, working with the help of community health workers. Mobile based solutions constitute around 50 percent of this year’s health care innovations.

Women’s Empowerment - Women’s safety and empowerment has emerged as a key issue in recent years. While mobile based tracking solutions for enhanced safety have existed for a few years, the focus is now on creating wearable devices. Mapping solutions that provide safety information about localities are also being created – in many cases this information is crowd sourced with feedback from women. Solutions are also focussed on enhancing livelihood opportunities for women by creating e commerce portals for micro entrepreneurship, networking and jobs portals for women.

Other Social Issues – India is home to a multitude of social challenges. As with every developing nation and economy, India struggles with issues such as child labour, environmental degradation, financial inclusion, governance, farmer services and many more. Young entrepreneurs are actively engaged in creating solutions to tackle these emerging themes – mobile based solutions for waste management, web portals connecting farmers to end users, online services for crowd funding etc.

ICT based solutions are creating deep impact in each of these focus areas – and some of the very best solutions have been a part of NSIF’s network. Based on rigorous desk research and analysis the team selected a few solutions in each of the thematic areas to be showcased in the book. With experts and consultants, the team further interviewed project representatives, heads of organizations and innovators to gain insight into the solutions. This deep dive approach helped us understand the innovations – the intentions and the potential impact. Through interactions with beneficiaries and partners, this impact was qualified.

The book tells the story of 13 of the best innovations in the country, analyses their genesis, what makes them winners, and their potential. In most cases, we find that a personal incident or experience – in a hospital, or a school, has left a lasting impression on people, compelling them to tackle a development gap. In some cases, leaders of organizations have identified a gap area in their own delivery of programs and plugged it with innovative solutions. The focus has always been on creating a cost effective solution, suitable for an identified need. Young innovators creating novel devices or hardware solutions often have a background in or deep understanding of technology. However, in some cases, the technology component is addressed by a partner with the innovator providing the overall structure, inputs and designs. In case of more traditional themes such as Education and Health, NGOs are the biggest source of innovations – use these solutions in their on groundwork. However, in emerging sectors such as Accessibility, Youth innovators are taking a more active role, developing novel solutions.

The book also contains snapshots of some of
the very best social innovations with the potential to create large scale impact, insights by jury members for the best innovations selection panels, and thoughts from experts in technology and social innovation.

The publication aims to demonstrate how technology can be used to achieve development goals in the hope to not just create a better understanding of such initiatives, but also to enthuse many young innovators to join the movement.

We are grateful to our partners Mphasis and Genpact, to the industry leaders and experts who shared their thoughts and insights, without whose support this book would not be possible.
In 2015, Government of India launched the ambitious Digital India campaign – aiming to provide all citizens access to digital infrastructure and resources, to make government services available easily and promote universal accessibility. Many other campaigns with specific goals followed – Make in India to promote indigenous technology and products, Skill India to enhance vocational training for employment, among others. These campaigns have brought renewed focus to a well-established fact – scale and reach, and subsequently ‘reaching the unreached’, is possible only if technology is used and deployed at large. While the technology industry propelled India into the path to being an economic superpower, it also has the potential to ensure that this growth is equitable.

With “digital” permeating all facets of life, technology has been the one unifying attribute of effective solutions for a range of social issues. From creating awareness about preventive healthcare with mobiles in far flung corners, to tracking poverty through GIS mapping, connecting teachers in schools to pupils in villages and creating effective solutions for disaster management, technology has successfully provided many solutions for a myriad of development issues. With falling costs of technology and increasing use, techno-social innovations, developed and implemented by the growing social enterprise sector, for-profit and non-profit, are all set to transform the future and pave the way to a more inclusive and equitable India.

The NASSCOM Social Innovation Forum (NSIF) is a platform to encourage and support these techno-social innovations that endeavour to solve big problems in development. The Forum embodies NASSCOM Foundation’s vision to further the use of technology to address a wide spectrum of challenges faced by the country. The forum has, over the years, focussed on a range of development areas.
This report has been designed to showcase some of these innovations and good practices in the following themes chosen for this year: Primary and Secondary education, Skill and Employability, Accessibility, Health and Women’s Empowerment. Projects and innovations in governance and social issues have been covered under ‘Other Social Issues’.

Despite steady increase in literacy rates, the Indian education system could do well with systemic reforms and better services in rural areas, especially in Government run schools and affordable private schools. Low student-teacher ratio, poor student retention, teacher absenteeism and overall school management remain big challenges still. Though overall enrolment rates have increased with over 90 percent children enrolling in schools, overall learning outcomes continue to be sub-par. Less than half the children in class 5 can read text taught in class 3. By the age of 14, 50 percent of children drop out of school. A majority of children do not complete secondary education.

The Government’s Skill India program aims to train 40 crore people in India in different skills by 2022. ICT based solutions can go a long way in the realization of this target. This year in the category of ‘Skills and Employability’ innovations focus on creating digital content in the form of videos that provide product and services training, English language skills, soft skills, IT and related skills, delivered through mobile phones and web portals to rural youth. Innovative models combine digital learning with on ground training providing holistic skill building for employment. For the youth with formal education, many mobile and voice based solutions provide career guidance and counselling, helping them hone their skills and secure employment. Web portals, often integrated with mobile apps, connect youth from tier 2 and 3 cities with companies and start-ups in metros that are looking to hire talent. The need of the hour is to localize some of these solutions, providing content in vernacular medium and training in nearby locations for youth. Large scale skilling programs implemented by NGOs need smart tracking monitoring mechanisms to map skills that are in demand to courses available.

With over 60 million persons with disability (PwDs), there is a clear need for assistive technology and accessibility solutions in India. Unless the big shift towards digital and online media includes this sizeable population, inclusive growth would be a distant dream.
The Indian healthcare ecosystem has remained patchy with a combination of public and private providers that are often not aligned. A concentration of providers in urban areas leaves around 70% of citizens without appropriate and adequate healthcare services. The number of trained medical staff is vastly inadequate, rendering existing facilities inefficient and making them over crowded. Reliance on unqualified practitioners has led to the spread of misinformation and contributed to low recovery rates. Preventive healthcare also suffers due to lack of information on sanitation and nutrition.

Healthcare has been one of the major beneficiaries of the technology revolution. With increased connectivity, doctors have been able to treat patients in far corners of the country with telemedicine solutions. The Indian telemedicine and tech-health sector has witnessed steady growth over the past few years. In the category of ‘Health Care’ there were innovations focusing on both preventive and curative healthcare. Mobile based apps that provide information on health needs, apps that help organizations monitor their field staff and manage systems, SMS and voice based systems that are helping disseminate messages on sanitation and malnutrition were put forth. Online and cloud based solutions connect various healthcare providers helping in seamless sharing of information. Linking with insurance providers is helping rural citizens access cashless treatment. Solutions mostly focus on early diagnosis by connecting rural patients to specialists, monitoring of patients with diseases that require periodic checking, and on training and monitoring of health workers. The need areas include cost effective hardware solutions for testing and diagnosis, training of health workers and focussed intervention for critical illnesses.

Women’s rights, discrimination, safety and empowerment have not been on the radar of technology solutions traditionally. However, alarming rates of violence against women, lack of livelihood opportunities and other facilities have compelled technology experts to create innovative solutions that can empower women in all walks of life. Mobile based solutions and wearable devices that enhance safety and communication in times of distress have been created and adopted by a large section of women in the country. Innovators are engaged in improving the form factor of these solutions, integrating them in jewellery and other accessories that women can easily use. Improved integration with local low enforcing agencies is required for the success of these solutions. Many websites help disseminate information to girls on their rights and opportunities. Online portals combined with a web interface are
providing many self-employment opportunities for women at home who wish to start small scale entrepreneurial ventures. Online communities and portals are also helping women express themselves and creating awareness on women’s issues. With more and more women involved in the technology revolution, ICT solutions are expected to positively impact women’s empowerment in the country.

ICT based solutions are creating transformative change in many developmental themes – these were included in the “Other Social Issues” category. Crowdfunding portals are providing microfinance to rural entrepreneurs while mobile banking solutions help less literate individuals carry out banking transactions. A range of services is available for farmers – apps that provide timely weather forecasts, SMS based services for spreading information on market dynamics, and online portals that link them directly with end users are all available. Innovators are also engaged in creating solutions that help in waste management and protection of the environment, disaster management and conservation of culture. New technologies like Mobile and Cloud have stimulated many innovations that aim to address these varied development issues.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Type of Solution</th>
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| Primary and Secondary Education | • e-content, interactive content  
• Game based learning  
• School management systems  
• Teacher training modules  
• Portals connecting parents, teachers and students  
• Monitoring mechanisms for parents  
• Micro clouds and tablets for dissemination of content in areas with low connectivity |
| Skills and Employability      | • Online video content for training  
• Portals and solutions linking employers to jobseekers  
• Online and telephonic career counselling |
| Accessibility                 | • Wearable devices to aid mobility  
• Cost effective braille printing and copying devices  
• Hardware devices to make digital content accessible  
• Models of skilling and training using software for PwDs (JAWS etc.)  
• Learning solutions for children with ASD |
| Health                       | • Telemedicine linking doctors to patients  
• Mobile apps to track health-workers and medicines for patients  
• Patient monitoring and hospital management solutions  
• Mobile solutions for emergencies |
| Womens Empowerment            | • Wearable devices for safety  
• Mobile based solutions for tracking travel  
• Web portals encouraging micro entrepreneurship  
• Portals for job seekers  
• Online and mobile solutions on healthcare |
| Other Social Issues           | • Mobile and online solutions for microfinance and banking  
• Solutions for farmers – weather forecast, linking to end users, encouraging fair market prices  
• SMS based solutions for weather forecast and environmental awareness  
• Waste management solutions for restaurants etc. |

Statistics indicate the enormity of the challenges faced in all of these thematic areas. Such magnitude cannot be tackled by the resolve of a few individuals committed to
challenge conventions. It requires the prowess of technology which can empower these individuals with critical data and insights to create change at a societal level. However, there exists a gap between human hands and tech interventions and NSIF plays an important role in bridging this gap. Innovations in technology have been many, but it is only now that they are seeking new ways to apply innovation for social good. NSIF is a bridge where those who know technology can talk to those who know social issues. Tech-for-good allows a sharing of best practices quickly and effectively across spaces which may or may not be speaking to each other.

The 2015-16 edition of the NSIF Challenge received interest from hundreds of innovators from across the country. Given below is a brief analysis of what this year’s Social Innovation Forum looked like.

The 2016 NSIF invited applications across six thematic areas. Education and Healthcare remain the major area of focus of innovators with the maximum number of innovations. Skills and employability is an emerging area of focus with solutions for improvement of service delivery and improved connectivity between employers and skilled workforce.

The category Other Social Issues had many interesting solutions. Innovations to improve Financial Inclusion, solutions for farmers connecting them to the end users, information dissemination on environmental protection, waste management and disaster management were some of the areas of intervention.

41 percent of the solutions were from Not for Profit organizations. These solutions are typically developed in collaboration with a technology partner, while the NGO provides subject matter expertise and on ground implementation. In the Health category, over 60 percent of solutions are by NGOs. Across most of the thematic categories, a majority of the innovations were put forth by NGOs, followed by Social Enterprises, as detailed in the table above. However in the emerging areas of Accessibility, and the newer areas categorised under Other Social Issues, Students and individuals are getting actively involved. 44 percent of solutions in Accessibility and 47 percent in Other Social Issues were by Students and Individuals.

While most of the innovations were still in prototype phase, many innovators have gone ahead with pilot testing and implementation. Most of the students and individual innovators intend to register as organizations to continue this work – either as for profit enterprises or NGOs.
Web based applications remained the most popular technology channel with innovators. These range from portals that act as a source of information, repository of content for learning, e-commerce portals connecting farmers to end users, and websites that connect job seekers and employers. Increasing penetration rates have made mobiles an effective medium to deliver services and also collect data on ground. Mobile solutions range from apps to SMS and GPS based solutions. Integration of mobiles with a hardware solutions and cloud are leading to interesting hybrid models.

Mapping the origin of innovations presents us with an interesting geographical dispersion. Maharashtra and Karnataka continue to dominate the landscape. However, the innovation ecosystem is now spreading to smaller states such as Haryana, Odisha and Kerela. Non-metropolitan cities have joined the movement for change.

The second edition of Ideas that Impact contains case studies on some of the best solutions that were a part of NSIF 2016 across various thematic categories. Focussing on innovative use of ICT, potential to impact intended beneficiaries and scalability, projects were shortlisted. The selected projects were further analysed with the help of secondary research. With the help of expert consultants, the team conducted in-depth interviews with project leaders and innovators and interactions with beneficiaries and partners. The 13 selected case studies outline how an innovative project been able to tackle a problem and a challenge in each of the sector, providing a demonstrably better, more effective, and in most cases lower cost solution. The impact on ground - on the beneficiaries are evident in the current times, as well as in the future. Testimonials from beneficiaries and partners validate these solutions and innovative models.

The book also includes snapshots of innovative and effective solutions in each thematic area that has demonstrated positive and scalable impact. Thoughts from experts and business leaders are included to add to the understanding of each thematic area and the potential for technology to transform it.

The stories of these stellar innovations speak to the fact that change can be brought about by ordinary people. A small experience in a hospital, a personal memory of school education, an incident involving a person with disability – these are often instances that have inspired most of the innovators whose stories are in the next few pages. These are people who have witnessed a gap in the system and have been moved enough to fulfil it with simple yet innovative solutions. These are also able leaders of organizations who have recognized that technology solutions can help them make their work more streamlined and impactful. These are people who have realised the power of technology and are harnessing it to create sustained change. NSIF, through the annual publication – Ideas that Impact, aims to enthuse more and more innovators to join this movement for change.
Technology based innovations have the potential to transform lives of people at scale and positively affect development outcomes. It can fundamentally alter unit economics, thus making essential products and services more affordable and accessible to large sections of society. These innovations have the potential to bridge the divide between digital haves and have-nots, improving the prospects and quality of lives of millions.

Take the education sector in India, for example. One of its key issues is poor learning outcomes. Over the next five years, innovation around emerging digital technologies could play a key role to fill this void. There are many such other sectors. Platforms such as NSIF institutionalize social innovation through an enabling ecosystem which encourages more and more entrepreneurs to solve difficult problems in education, healthcare, disability et al. With more sustainable business models, capital inflows to these projects would also increase. I do believe that NSIF has the makings to become the defacto Tech for Good platform in the country to promote social enterprises.

Every year, our task of choosing a few winners from a host of deserving winners is becoming more and more difficult. The applications this year stood out for their high quality, innovation quotient, choice of relevant technologies and sustainable business models making each of the applicants a potential winner. We do not view any of the projects from the lens of success or failure, rather as the best possible approach to solving large scale developmental issues faced by our country. These projects are best thought of as running proof of concepts and the successful models should be replicated and scaled up.

"Technology enabled social innovation holds tremendous promise. We believe that Digital Technology can revolutionize the field of learning especially at Primary and Secondary Level. We are thrilled to partner with NSIF to contribute to the government’s progressive agenda of transforming India into a digitally empowered society and knowledge economy. Through NASSCOM Social Innovation Forum, we have tried to find the best technology solutions to bridge the literacy gap across India“

The future looks very promising when we look at these projects as opportunities to test out the best approaches, iterate and refine the same. The key factors that would drive success would be innovation and collaboration of all involved. But the best measure of success is measured by transformation of lives at scale.
Innovation and social responsibility are at the core of Genpact’s ethos. The company has been at the forefront, whether in its ability to constantly reinvent itself or its commitment to give back to society.

As India aims to grow as an economic superpower on the global stage, a key challenge severely impeding holistic growth of industry, community and the nation is the demand-supply gap in talent. The primary reason for this classic ‘Education-Employability’ divide is that the country’s graduating youth lacks the right skills to be readily hired by industry.

- An estimated 5 million students graduate every year, but only 0.6-0.7 million are employable by Tier 1 and 2 companies.
- One in every 4 men up to the age of 29, with a graduation or vocational education is unemployed.
- 53% of India’s employers are unable to fill entry-level vacancies due to lack of skilled manpower. Employers are suffering escalation costs due to inefficiency of unskilled manpower, productivity loss, rework and so on.
- 500 million professionals would need to be skilled by 2022, a key priority for the nation’s development.

The centrality of skills to India’s development and the importance of collaboration between industry, government and youth were highlighted at the launch of the Skill India program. The Indian IT-BPM industry has a potential of 30 million employment opportunities by 2020. Currently it employs about 3 million people directly and provides indirect employment to about 9 million people. Genpact sees a significant opportunity in designing a solution for the IT-BPM industry that continuously seeks to develop the right talent for driving growth.

Genpact believes that ‘Skill-building for Employability’ of the country’s youth is the most powerful way in which it can contribute to long-term sustainable community impact. “Education and Employability” is, therefore, the primary pillar of our CSR strategy. As an industry leader generating enormous employment opportunities for youth in India in the last 18 years, Genpact recognizes its responsibility to leverage its experience and expertise to devise a win-win solution for both industry and the community.

(Data sources: National Sample Survey, National Skill Development Corporation, NASSCOM SSC)
This is the intent behind Reach Higher, a strategic Genpact CSR initiative in Skill Development, together with NASSCOM Foundation & NASSCOM Sector Skills Council. It was designed to address the issue of employability of youth in India in a highly sustainable format. Launched in November 2014, the program aims to create a scalable and sustainable ecosystem that brings together industry, academia and India’s leading vocational training partners to help Indian youth become job-ready, with an initial focus on the IT-BPM industry. Genpact’s vision for the program is to scale across skills that companies need and thus make a huge contribution to address the employability challenge in India.

Genpact’s eight years of partnership with NASSCOM Social Innovation Forum (NSIF), and the resulting engagement with exceptional social innovations that we have had, has reaffirmed our faith that technology is one of the most important ways to reach the maximum number of beneficiaries in any development program and create large scale, positive impact.

ICT helps to support and improve the current skilling process, resolve gaps in delivery, help in localisation of building vernacular content and promote replication across sectors. These technology solutions can add the much needed impetus to an ambitious project like Reach Higher and also prove instrumental in the success of the Skill India Program.

This year, it was really refreshing to see a diverse set of ideas. The passion for technology and social causes was clear in the participants, and it was stimulating to interact with people in this sphere. A winning project always involves systematic thinking, using tools to outline the key aspects of a problem and finding solutions that are measurable. The entries that were constructed in this way made the most impact. Some of these ideas were new-to-the-world while others reinvented an existing model and applied it to a new context. With sufficient support and mentoring, these ideas could really make a significant difference.

In this book, we celebrate some of the best solutions in skills that we, through NSIF, engaged with this year. Our hope is that these solutions grow, scale and reach their potential to create impact.
EDUCATION

Technology in Education:
A promise waiting to be delivered upon

At one level, the education space seems to be buzzing and stretching to newer horizons. However, access to an acceptable quality of education still remains an unattainable dream for many.

While considerable progress has been made to provide better access to primary education, we continue to wrestle with access to secondary and higher education. Only 1 in 3 children in India enrol into senior secondary education. Far fewer complete successfully and move on to higher education. Quality of education is a challenge across the spectrum. Children start falling behind as early as primary classes and majority of higher education institutions would struggle to meet quality benchmarks. India's education system is perhaps one of the biggest threats to its ability to leverage the demographic dividend. This is what has compelled non-profit organisations like vChalk Education to implement established, non-traditional but proven approaches to help children in 3rd, 4th and 5th grades catch up on basic Math and Language skills for learning, to unleash the true potential of India's next generation of learners.

Like many other sectors, technology has the potential to disrupt the education space in a significant manner. In fact, technology can provide answers to most of the challenges faced by the education space – whether it be breaking the reach-richness trade-off while tackling access issues or the issue of addressing multi-graded, multi-level classrooms through personalised learning solutions or addressing fundamental constraints like information asymmetry, shortage of capable teachers, etc. digi-TEACH, an innovative courseware framework designed by HPPI trains primary school teachers by enhancing teaching skills in a holistic manner that covers subject knowledge, child-centric methodologies, societal awareness and leadership skills. Technology can allow us to fundamentally re-imagine the purpose of a classroom and a school/college – allowing us to seek a much higher RoI on investments made in building and running institutions.

Classroom transactions and pedagogical processes have been the hotbed of innovation in education thus far. The traditional paradigm of teaching where the teacher was the sole provider of information has seen a seismic shift. Tech enabled classrooms ranging from high-end Smart Board solutions to low cost options like Bridge Academies; self paced, adaptive learning solutions like Khan Academy and Mindspark, flipped and blended classrooms riding on the MOOCs wave, and one to many teaching formats, e.g. classes delivered over Edusat networks, are the most commonly observed innovations. They enable students to engage with content like never before and give teachers the ability to use classroom time much more efficiently. On the other hand, the quality of education in school is also being monitored by the parents. CfBT Education Services and Educate Girls are leveraging mobile technology to capture, transmit and analyse data on a large number of schools which allow for thorough analysis and timely course correction in the education system.

However, innovations are not limited to reimagining the content, teacher and student interactions. New platforms such as Meritnation and Educationworld aim to take away the information asymmetry across various stakeholders whereas technologies like Blackboard strive to make the management of education systems more efficient.

As the education space continues to embrace the power and promise of technology, the question to ask is how deeply will these innovations penetrate? There are 1.4mn schools in India with over 200mn children, 300-500mn people need to be skilled in the next 5-7 years and less than 10% young adults complete formal higher education. How many of these lives will education technology touch? Today, that figure is in single digit percentages. Can the current innovations be made to scale? Can they go from small pilots to large revolutions? Google, Amazon, Uber, Whatsapp have fundamentally reshaped the sectors they operate in. Which organisations are going to be their equivalents in education? That space is yet to be occupied and the world is waiting and watching.

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Managing Director
Boston Consulting Group, India
Another D grade! Sudha, a mother hailing from Kurnool, Andhra Pradesh, glanced through the rest of her son’s school report card. She did not understand much else written on it, but she knew this was bad news. She wished she could go speak to his teachers to find out what was going wrong. But the last time she tried to do that, the headmistress was not able to explain it to her in a way that she understood. She did not feel encouraged to go back again.

This is the reality for many parents from disadvantaged communities whose children are in government schools. Given their illiteracy, they are unable to be actively involved in their children’s education. Moreover, the existing community accountability mechanisms are very weak, resulting in students receiving an inferior education. While the Right to Education Act of 2009 mandates that all schools should have School Management Committees (SMCs) that meet every month to monitor key school quality indicators, majority of them are ineffective or defunct, existing only on paper.

This state of affairs pushes the team at CfBT, a non-profit education services provider working in the fields of English Language Enhancement, Teacher Training and Whole School Improvement, to find a solution. They designed a mobile School Score Card (SSC) which lays out school-quality indicators in an easy-to-understand, pictorial manner for illiterate mothers. They engage mothers of existing women’s self-help groups to become active members of the SMCs, and encouraged them to evaluate their children’s schools using the SSCs. This data was then used in the SMC meetings to identify and act on areas of improvement.

Through this simple yet effective innovation, CfBT empowered mothers to take collective action and hold schools accountable for the quality of education they offer. Moreover, it served as a powerful tool to capture, transmit and analyse data on a large number of schools to the Education Department, thereby spurring scalable, effective action in the path to progress.

Dwithiya Raghavan
Chief Operating Officer,
CfBT Education Services

G V S Prasad
Executive Director,
CfBT Education Services
Mobile School Score Card
Giving over 20,000 students a better schooling

The mobile School Score Card (SSC) is a pictorial, visual tool that has a traffic light system of rating the school quality indicators. Right from its first pilot in the Anantapur district of Andhra Pradesh, the effort was to design a system that would be extremely easy for illiterate women to use, and would cross language barriers as well.

In its effort to create a solid foundation for the project, CfBT also focuses on empowering illiterate and semi-literate women to act as school quality monitors. They identify mothers from the already established, local self-help groups, and guide them on how to identify and rate school quality indicators based on the SSC. They are encouraged to make random visits to the schools and evaluate them on the basis of various parameters.

Once the mothers fill in the SSCs on their phones, the data is sent via SMS to a centralized server located in Hyderabad. This is the first and only project in India where SMS is used to collect data on school quality indicators, and then analysed and reported for improving the quality of education.

Next, the data is collected, analysed, and discussed in the SMCs to analyse the strengths and areas of improvement of their specific schools. In order to maximize the potential of these forums, the CfBT staff conduct door-to-door campaigns to encourage parental attendance in the SMC meeting. Mothers are further trained on effective management procedures and participation expectations. They are guided on how to report back their findings in the SMCs, engage in productive conversations with the school teachers, and seek redressals, if required, from senior Education Department officials.

Finally, the data is also shared with the District and State Education Departments to identify high performing schools and schools which need support for improvement. The aggregation and analysis of data on the school, village, mandal and district level helps point out the common barriers in the delivery of education. With this accurate picture of the quality of education in their schools, they are better equipped to take corrective measures at the right time.

Milestones

**2008**
- Creating awareness and training mothers on Child rights and Right to Education
- Involving the mothers in the School Management Committees

**2009**
- Training mothers to assess school quality through joint visits with CfBT field visits in 87 school
- Collecting first round of School Score Card data through hard copy instruments

**2010**
- Facilitating productive conversations with Principals and teachers on joint resolution of school quality issues
- Sarva Shiksha Abhiyan in Anantapur takes notice of the impact on School Quality and increases the coverage to 425 schools in 7 blocks

**2011**
- Hard copy School Score Card is made digital and mothers start sending SMS of school quality information.
- Change is visible in student and teacher attendance, quality of mid day meal and drinking water and toilet facilities

**2012 and after**
- Mothers go regularly to schools and monitor school quality indicators.
- Discussions on academic aspects increase in the School Management Committee meetings with parents bringing up use of teaching learning materials and activity based learning in the classes.
- Retiring SMC members train their successors on the use of the card and continue the good practices

**2015**
- Training commenced in 167 schools in Khunti district of Jharkhand
**A sustainable path to quality education**

Through its journey, CfBT focuses on getting things right from the word go. They start by making the mothers aware of their educational rights and entitlements through rallies, street plays, information campaigns and orientation programmes. This gives them a better understanding of what quality schooling ought to look like, with specific focus on issues like teacher attendance, student attendance, clean toilets, safe drinking water, and nutritious mid-day meals. A sub-committee on education is also formed in all self-help groups to make quality of education a key agenda at the village, sub-district and district level. Next, since the mothers had their own cell phones in most cases, the use of mobile technology makes this innovation extremely simple and affordable to execute and scale up. There is only a negligible cost incurred on providing them with SIM cards to enable them to use the SSC. Printing and transportation of the printed SSCs is eliminated, making it more cost-effective as well as eco-friendly.

The vehicle for carrying the interventions forward are the SMCs, an apparatus that is already constituted in all government schools in the country. Thus with very little investment, the SMC infrastructure can be leveraged to replicate and roll out this project in several districts and states in India.

Another key player in this dynamic is the Education department, where the extent of their ‘buy-in’ to the programme is crucial. CfBT has tackled this by making high level connections within the State apparatus and engaging early with partner schools. Moreover, as the Education officials are encouraged to engage in the women’s self-help group meetings, review school scorecard data trends and listened to women’s escalated concerns, issues no longer go unaddressed. Thus, with its careful alignment with existing political, social and educational structures, CfBT has built a robust network of ongoing support, momentum and resources for the mobile SSC project.

“Earlier, we only learnt through books and blackboard. Now we can learn through charts, flash cards, pictures. Teachers are organising quiz competitions and giving away prizes. There is a change in the teaching. They make us do the class work with a lot of interest. The practices of writing on the board, reading and asking are helping us get good marks and we are studying well.”  
**Annappa, Student of 3rd Standard, Dayyalakuntapalli**

“Introduction of the School Score Card is a good thing in schools. The community got a chance to monitor school’s performance. As most of the parents are illiterate, it takes some time to get more fruits from score card. I also visited a SMC and saw the SSC displayed on notice board. It’s a good sign. SSC helps the community to involve the teachers in school activities.”  
**Ramachandra Reddy, Project Officer, SSA, Anantapur**

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**Impact**

- Runs in 425 schools, directly impacting over 20,000 students and their parents
- 91% parents aware of and actively enquiring about the SMC meetings - 91% Parents from the engaged schools actively seeks guidance and information from SMC meetings
- Visible improvement in quality of education received by students of the intervention schools
- Teacher attendance greater than 90% in the engaged schools
- So far, more than 700 local women assessed the quality of local school education through the use of SSC
- Increase in attendance of the SMC meetings, with members discussing issues like student attendance, academic grades of students and teacher attendance
- Over 80% of the schools have initiated use of improved teaching and learning process with guidance from CfBT
- Nearly 100% of schools serving a quality mid-day meal
Future Focus

- Upgrade the mobile SSC to a mobile app in order to make it ever more user friendly.
- Store and provide data using cloud-based solutions, thereby providing Education officials real-time access to the data.
- Carry out a widespread roll-out of its community-based accountability model by creating a series of “success stories” of schools that are performing well.

“I was very scared to go to my kids’ school. Now after the SMC meeting and use of SSCs, me and my friends – mothers like me – are more confident. We understand how to demand improvements over time. I can feel that my children are regular to school as the teachers are coming daily. They use lot of games and models and things to make learning fun. My children are learning better. Earlier they used to get D grade. Now it is B grade, and sometimes A grade too. They can actually read aloud fluently and get correct change from the market. I feel proud that now I am able to get good quality education for my children.”

Anasuya, mother of 3 children, Bullasamudram

“The short based accountability route through greater community participation is not a magic bullet - it needs both changes at a deeper level in community relationships and how the school deals with issues and it requires providing the community with the appropriate tools, means and processes for engaging in dialogue that is supported by easily collected and relevant data.”

Michael Latham Principal International Advisor, CfBT Education Trust and the design lead on the School Score Card and Community Accountability project
When Pinki started working in the village, rarely would she find a parent sending their girls to school. Fathers like Raju, whose nine year old daughter Mansi was not going to school, had rarely seen this as a choice. For Pinki, the challenge was convincing Raju and many fathers like him that education will give their daughters a better future, better income and a better marriage in the right age, with healthier children. Pinki was confident though – she has convinced many unwilling parents, to think better for their daughters.

Pinki is a Team Balika, one of the community volunteers at Educate Girls (EG), a non-profit organization, dedicated to provide access to quality education to young girls in educationally backward geographies in India. She identifies out-of-school girls, convinces parents about the importance of education for a girl child, facilitates their enrolment into schools and makes sure they stay in school.

Helping girls like Pinki and Mansi live up to their potential is exactly what motivated Safeena Husain to set up Educate Girls. After graduating from the London School of Economics, she worked in both rural and urban underserved communities in Ecuador, Mexico, Bolivia, and South Africa. In 2004, Safeena returned to India to drive the agenda closest to her heart – gender inequality in education. She started with a small project in 50 of the poorest-performing government schools in Rajasthan’s Pali district. According to the Ministry of Human Resource Development, of the 26 gender-gap districts in India – areas where women are subject to higher rates of discrimination – nine of the most severe gender-gap districts are in Rajasthan alone. Safeena took this challenge head on, and developed a public-private partnership model that engaged parents and village leaders through community volunteers, partnered with schools and the government, to create holistic systemic reform against the gender disparity in the Indian education system.

Educate Girls has scaled soaring heights. However, as operations expanded, the magnitude of data being collected grew exponentially and to manage the organization well, it needed a more sophisticated system of monitoring field staff and their activities. To overcome these challenges, the team adopted a mobile based monitoring that improved performance in leaps and bounds. Managers could track at school-level and leaders track performance against targets set for the project.
Educate Girls Mobile App
Enabling Real Time Monitoring and Course Correction in Over 8500 Schools

The mobile application is an innovative solution aimed at Educate Girls’ vision to improve and strengthen organization-wide performance. Developed in partnership with Lionbridge Technologies, Educate Girl's technology partner, the application has helped field staff quicker access to real-time data and hence enable prompt course correction. This tool also means less time spent on Excel-based data entry and compilation and more time spent on enrolling, retaining and improving learning outcomes of girls and boys. The application has two major components:

To enable the same, two categories of performance reports are generated:

1. Employee performance report: It helps district managers understand where and how much time field staff are spending conducting activities in schools and villages, and flags employees that are falling behind on expected activities. These reports also help managers evaluate the integrity of the data submitted. Based on the geo-tagging of villages, the staff are expected to submit school and activity level data within a 3 to 5 km radius of the tagged village. If staff have GPS on and are within this radius, their data entries are considered valid, helping managers ensure that field staff are actually submitting data from the schools itself.

2. School Assessment report: This provides district managers visibility at the school level on school-level indicators such as the number of girls and boys enrolled and retained, number of teachers, school infrastructure like availability of separate toilets for girls and access to drinking water, and learning levels of children in the school. These reports help District managers quickly identify schools that are not improving on these priority indicators, thus enabling timely course correction in terms of re-allocation of field staff and their time spent at the schools.

"I have witnessed the evolution of monitoring and evaluation processes at Educate Girls. Mobile technology has helped to prevent human error during data entry, enable quicker access to data and hence real time course correction. Our mobile app has been nothing short of revolutionary as a performance management tool. Our end goal of timely course correction has been realized – helping us spend more time our core mission – of educating girls."

Gaurav Shukla, State Manager- Impact

<table>
<thead>
<tr>
<th>AREA OF MONITORING</th>
<th>HOW IT WORKS</th>
<th>HOW IT HELPS</th>
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<tr>
<td>Staff performance in field activities</td>
<td>The staff log their time at every field location using geo-tagging, alongside the activities performed during field visits</td>
<td>District managers get real-time visibility of field staff by time, location and activities performed, and can assess whether activities are going as per plans</td>
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<tr>
<td>Staff input data on school-level indicators such as the number of girls and boys enrolled and retained, number of teachers, school infrastructure like availability of separate toilets for girls and access to drinking water, and learning levels of children in the school</td>
<td>District managers quickly identify schools that are not improving on priority indicators, thus enabling timely course correction</td>
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Milestones

- 2007: Educate Girls was independently registered
- 2008: Started pilot project of 50 schools in Pali district
- 2010: Scaled operations to the entire Pali district with 2,300 schools
- 2011: Expanded operations to Jalore district with 4,400 schools
- 2013: Expanded operations to Sirohi district with 5,000 schools
- 2014 to 2015: Expanded operations to Ajmer, Bundi and Rajsamand districts with over 8,000 schools
- 2015 to 2016: Started operations in Bhilwara district
Making technology work for the cause of girl education

In the interest of making an application that can cope with the rural hinterlands of India, the EG mobile application has been designed to work offline or with the support of 2G. It is an Android-based native application that will run on any Android smart phones having basic configuration with 4.0 version or above. Such features make it fit seamlessly in the lives of field staff working in poorly connected areas, and also make it ideal to adapt for other non-profit organizations working in the space of rural education.

Moreover, EG has worked closely with its field staff to ensure that they are habituated with the technology and use data regularly to make their day-to-day decisions for planning field activities. In order to create an enabling environment that facilitates sharing of learning, managers and field staff together reflect on data, analyze it, and discuss corrective measures. District managers have also adopted interesting approaches such as bottom-up planning involving field staff in setting targets for their areas themselves, promoting greater ownership and accountability in delivering results.

Impact

 EG has implemented mobile based monitoring in over 8,000 schools and 4,500 villages across 7 districts in Rajasthan, namely Pali, Jalore, Sirohi, Ajmer, Rajsamand, Bundi and Bhilwara

Around 580 field employees have benefited from quicker access to data for timely course correction and lesser time spent on Excel-based data entry and compilation.

Field staff have more time to provide high quality support in the schools to enrol, retain and improve learning outcomes of over 2 million students

“The mobile app has helped me immensely. As a block officer, I have to monitor 12 to 15 field coordinators. With the daily login reports this task has become more convenient. I am able to see the progress of the work being done in the field and find areas where my team needs to focus more. The authenticity and transparency of data is ensured. Nobody can tamper with the data. Chances of error in the data is also very less.” Govind Ram, Block Officer Block – Taleda, District – Bundi

“What you can see with your eyes when you are working in one school, you cannot when you have grown to several thousand schools. That is where a strong measurement system comes in.” Safeena Husain, Founder and Executive Director, Educate Girls
Future Focus

• Educate Girls plans to expand to 9 new educationally backward districts between 2016-18 in Madhya Pradesh, Uttar Pradesh + Bihar.

• It aims to track performance of around 1,8000 field employees and around 15,000 volunteers, and capture school level information for 27,000 schools in 15,000 villages by 2020-2021.

• Over the next 2-3 years, it plans to develop a Learning Management System (LMS) through Mobile Technology as part of the next phase in its mobile application, delivering e-learning content for primary, upper primary and secondary schools.

• Develop a Performance Management System for improved planning and performance monitoring, improved organization, resource allocation (staff, time, activities) in the field, advanced analytics and generation of performance insights for decision support and course correction, strengthening the effective systems already built up.
Making Learning Happen

Remedial Learning Program by vChalk Education Pvt Ltd

Meet Chaitra, a 10-year-old girl from Belgaum, Karnataka. With the hope to provide her with a better education, her parents moved her from the local government school to the new private English medium school that opened nearby. An English medium school would surely mean quality education and empower her to achieve a better life, they thought. But will this expectation be met? The uncomfortable truth is that, in the fifth grade, Chaitra still cannot spell basic words or do basic calculations!

This is the state of many children across rural and semi-urban India. Parents in the lower income category are enrolling their children in the several affordable English medium schools that have cropped up across the country, with the belief that this gives them a better education. While the enrolment of children aged 6 to 14 has steadily increased in these schools, their performance is worryingly low. Insufficient number of teachers often results in inadequate time spent on developing basic learning skills of children who are often first generation school goers or the first in the family to attend English medium schools. As a result, the number of 5th grade children who can read 2nd grade level text decreased to 62.5% in 2014. The number of 4th grade children who can do a simple subtraction has steadily decreased from 67.7% in 2010 to 59.3% in 2014. Without these skills of English reading, comprehension and basic Arithmetic, they are unable to learn more complex concepts and make progress through school.

Anil Bishnoi, Co-founder and Tech Lead at vChalk, a software engineer, decided to approach this situation as a personal challenge. He teamed up with Daniela Gheorghe, and set off on a mission to support a million children in schools to catch up on their basic English and Math skills.

The vChalk team decided to take a proven-at-scale solution in remedial education, improve it and distribute it towards a segment that doesn’t have access to it. Taking its starting point as the Teaching at the Right Level pedagogical approach and the curriculum used by Pratham Education Foundation, they have designed a complimentary, activity-based remedial program for children in 3rd, 4th, and 5th grades. This is supplemented with a training program of instructors, and a robust progress tracking mechanism that measures the impact.

Anil Bishnoi
Co-founder, Tech Lead,
vChalk Education Pvt Ltd

Daniela Gheorghe,
Co-founder & Team Lead,
vChalk Education Pvt Ltd
vChalk Education Pvt. Ltd. - Accelerating the learning curve of children

The program is based on a standard, simple, remedial methodology called Teaching at the Right Level, a proven approach that has been implemented in government schools across India, Kenya and Ghana to help children improve basic Math and Language skills. The curriculum builds on the syllabus developed by Pratham Education Foundation, which has proven effective for more than 3.4 crore children in government schools across India.

With this foundation, vChalk developed the program using a thorough, three-step approach, which is currently being piloted with 50 children across 3 low-fee schools in Bengaluru.

For a period of 4-5 months in each school, with English and Math sessions every day, 25 students per class take remedial classes. Children who need to catch up form groups according to their actual skills and use level-tailored materials.

**vchalk approach for a 4-5 month remedial program in low-fee schools**

I. Identify students’ skill levels

- 1. Assess all children 2nd to 5th
- 2. Select eligible children across grades

II. Engage community class instructor and mentors

- 3. Recruit & train class instructor
- 4. Support Instructor - mentor (trained)

III. Track the progress of each child

- 5. Track progress in time
- 6. Report progress to parents

**Engaging the parents**

Early on in the project, vChalk realized that their main barrier was market driven: there wasn’t enough demand for quality improvement services from parents. They overcame this barrier by designing a community-led model that engaged them in the learning process of their children. This is what sets them apart from other educational programs.

They guide parents to observe each new skill their child learns, and track their learning progress reports. An Interactive Voice Response System (IVRS), is also planned where they can receive a calls in their respective languages and are guided to test their child through simple questions. For example, a child who learned subtraction will manage simple money transaction problems.

At its core, it offers parents a risk reduction on tuition investment and an increased return on their investment in primary education. They can observe the progress and see value in the money. As a result, at the right price point and level of awareness of the problem, low income parents are ready to pay for their child to catch up on basic learning skills without which the child won’t be able to learn further.

“vChalk exists to reduce or eliminate the gaps in learning in the first years of school. We believe in the power of teaching-at-the-right-level which is the most consistently-effective approach at improving learning outcomes, and also very cost effective”. Daniela Gheorghe, Co-Founder, Team Lead

**Milestones**

- **Dec 2014**
  - The vChalk concept is defined

- **Mar 2015**
  - The Venture plan is born

- **Apr 2015**
  - Win D-Prize International Award

- **Jun 2015**
  - Test 345 children for basic skills

- **Aug 2015**
  - Officially start operations in Bengaluru

- **Sep 2015**
  - Test 1061 children for basic skills

- **Oct 2015**
  - Win ISB Hyderabad IDiya Awards

- **Dec 2015**
  - Partner with 3 schools in Bengaluru

“In the (vChalk) classes I understand faster. Now I know that I can learn English and Math and play. I like these classes because I understand (...) so I can learn anything”, Charan K, 4th grade, 11 year old, Pragna Vidyani-ketan School, Bangalore
Impact

- First generation English learners improve specific skill levels and catch up on basic English reading, comprehension and number operations and, with further ongoing support from the class teacher, are able to follow the grade syllabus and improve their scores in grade exams.

- Class teachers learn about the remedial methodology and benefits of teaching at the right level, are able to follow the curriculum schedule, and can track the progress of each child.

- Principals see the overall school performance improving as the class performance improves starting from lower grades, gaining competitive advantage over other schools.

- Parents are aware of the required and actual skill levels of their child, learn about the returns of their investment in education, and see value in the money they are investing in their children’s education.

Future Focus

- Help 70,000 children in primary grades improve their basic English and Math skills.

- Offer the remedial service to 2000 affordable private schools in the next 5 years and above 5000 schools by its 7th year.

- Develop a world-class learning progress tracking platform, and partner with the Government of India to make it available to public schools in India.

- Expand in the quality enhancement business for affordable private schools, in the learning data business.

- Aim to define and generate standards on the “minimum benchmarks for learning” in primary grades in schools across the world.

“Parents who know that their children aren’t performing have enrolled them in vChalk classes because cost is affordable. Children enjoy the activities. We support them with the auditorium space in an effort to help students catchup” Priya Bharti, Headmistress, Ashwini School, Bangalore
More Than Lessons For Teachers

Innovative Courseware Framework - digiTeach by Humana People to People India (HPPI)

“You go ahead, I will meet all of you tomorrow,” said Sonam, a 17 year old from Rohtak, to her friends. They were going for a movie, but she had other plans - her digi-TEACH homework. Ever since she started the teacher training program, things have been so busy. But she is enjoying every minute of it. “I never thought learning could be so fun and interesting! I feel like I am growing as a teacher every day. Now I can’t wait to get in front of a classroom, and make a real difference to the lives of my future students.”

Sonam is one of the 4,600 teachers that are getting trained through digi-TEACH, a unique teacher training framework devised by Humana People to People India (HPPI), a development organization working in the areas of Primary Teacher Training, Remedial Primary Education, Community Development, Microfinance, and Agri-based Livelihood Solutions. When she was a student, Sonam often found learning uninspiring, and she dreamed of becoming a teacher who could inspire. Now, equipped with digi-TEACH’s wealth of knowledge, she was growing leaps and bounds in her teaching abilities.

Unlocking the true potential of teachers like Sonam, and leading them toward teaching as a career, is exactly what drives the team at HPPI. Led by veterans with immense expertise in education and development, the team endeavoured to address one glaring problem in the education system of India. Despite increasing enrolment in primary schools, over 50% of 145 million children complete their schooling without basic literacy and numeracy skills. This is primarily a result of shortage of teachers as well as skill deficiencies in existing teachers due to poor quality of training, leading to inadequate progress in the child’s learning and holistic growth.

The vChalk team decided to take a proven-at-scale solution in remedial education, improve it and distribute it towards a segment that doesn’t have access to it. Taking its starting point as the Teaching at the Right Level pedagogical approach and the curriculum used by Pratham Education Foundation, they have designed a complimentary, activity-based remedial program for children in 3rd, 4th, and 5th grades. This is supplemented with a training program of instructors, and a robust progress tracking mechanism that measures the impact.

Edward Westgaard
Executive Director, Humana People to People India
The next generation of holistic teaching

digi-TEACH is innovative in relation to other teacher training solutions as it focuses on the holistic skill development of teachers by working as an integral component of the D.Ed training, which is a standard framework recognized by the Government. digi-TEACH is an integral component of HPPI’s primary teacher training initiative, which it drives as a public-private partnership (PPP) in 3 States. It develops 3 core skill sets in teachers:

1. Personal Traits and Child Connection- covering sensitization, awareness and connection with child and parent
2. Knowledge - covering subject content and teaching skills
3. Societal Awareness- 22 monthly headline themes, catalysing comprehensive and active awareness on key issues relating to modern socio-economic environment.

This multi-faceted approach is a paradigm shift from pure knowledge-based modules that fail to address interpersonal roles played by the teacher. In addition to this, digi-TEACH emphasizes a 3-layer networking model for the trainee teachers with parents, communities and their alumni, which is expected to bring a level of holistic knowledge and sensitization not otherwise possible.

In this light, digi-TEACH teachers are equipped to transform the learning experience for children, empowering them with a robust academic foundation and strong support system to navigate through their schooling. Further, they also inspire parents and community members to evolve in their mindset from prioritising near-term contributions of children to family income, into one that looks at the long term impact of a strong educational base. Thus, they set the base for continued education of children, and ensure their employability and improved quality of life in years to come.

digi-TEACH
Turning 4,600 teachers into quality educators

The software has been designed by HPPI with the help of the Humana Federation, a key technical and resource partner for HPPI, in content modules and framework designed in consultation with education experts in the State education departments (SCERTs). Although it is still in prototype stage, it is an innovative use of technology that enhances the delivery, absorption and transmission of knowledge and feedback during the training of teachers and also the post-training phase. digi-TEACH focuses on enhancing teaching skills through comprehensive mapping of curriculum and training programmes. These are broken down into micro-modules on a custom-designed software platform and housed in the digi-Library, a digital repository of open source reference material available on the web. This enables trainee-teachers to access the latest knowledge capsules 24x7, while saving the cost of paper resources for the institutes.

Milestones

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<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>2012</td>
<td>• Started development of the digi-TEACH</td>
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<tr>
<td>2012</td>
<td>• Completed development of the full module set (1,100+ modules)</td>
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<td>2015</td>
<td>• Placed prototype in two DIETs (District Institute of Education and Training) in Haryana-Faridabad and Mahendragarh</td>
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“Ensuring the holistic growth of the child in an inclusive manner is a cornerstone of the Indian education policy. Teachers play a vital role in this mission, igniting the young minds, laying the foundation for citizens of tomorrow. The use of technology in education can make a difference through better learning levels in schools, laying the foundation for a better future for the children. The digi-TEACH framework contributes to the development of teachers through the innovative use of technology in driving knowledge and skills in the training process.”

Shelata Alawat, Director State Council for Education, Research and Training, SCERT, Haryana
Ideas That Impact   31

Trained close to 4,000 new teachers
Re-trained around 600 existing teachers
Each additional year of schooling can enhance the later stage income of children by 10%
Catalyzed learning Humana’s flagship initiative NeTT, the primary teacher training program, is currently implemented in 27 locations.

Future Focus

• digi-TEACH plans to fully develop the software, and translate the existing courseware framework and database of over 1,000 knowledge modules into an app friendly structure that is accessible to trainees 24x7.

• It aims to train 100,000 teachers over a period of 10 years, and therefore give 2,50,000 children access to improved learning systems through enhanced teacher effectiveness.

• It plans to scale to DIETs in 27 districts across Haryana, Madhya Pradesh and Uttar Pradesh, and in the next 10 years, to have digi-TEACH adopted systematically across all DIETs of a total of 5 states.

Impact

• Trained close to 4,000 new teachers

• Re-trained around 600 existing teachers

• Each additional year of schooling can enhance the later stage income of children by 10%

• Catalyzed learning Humana’s flagship initiative NeTT, the primary teacher training program, is currently implemented in 27 locations.

“Education is the enabler, the catalyst and the equalizer in the 21st Century. It is HPPI’s vision to ensure that every child has access to the best learning through the best teachers. digi-TEACH as a tool and a system will help teachers acquire relevant skills to enable them to connect to their students, and make a difference where it matters. The unique manner in which digi-TEACH develops teachers through digitally enabled theory, practice and experience, thereby empowering them to prepare a new generation of young minds driving the future. In partnership with the State Governments and visionary partners, HPPI aims to develop and skill 100,000 new teachers in the next 10 years.” Snorre Westgaard, ED, HPPI.

The second component of digi-TEACH is DMM-a comprehensive set of tasks, courses and experiences that the teachers need to complete through their training. It also includes a progress tracking and feedback system where teachers can map their development in a self-navigated manner. These are all pre-loaded on PCs, laptops and netbooks of the training classrooms, and also on app-based clients on mobiles and tablets. Teachers, therefore, have 24x7 access to information and evaluation systems and also have a net-working-cum information resource to rely on once they graduate.

“digi-Teach has helped me develop as a teacher by immensely improving my presentation, observation and leadership skills. It guides me to self-navigate the learning process through the digital library of study materials and structured activities, available at the click of a button. As a teacher, the innovative training helps me quickly assess the learning levels of my students, and use customized methods of teaching to address their individual needs in line with their cognitive levels and ability to grasp key concepts.” Ayushi Bhati, 2nd Year student-teacher, District Institute of Education and Training, Faridabad.

The software has been designed by HPPI with the help of the Humana Federation, a key technical and resource partner for HPPI, in content modules and framework designed in consultation with education experts in the State education departments (SCERTs).

Although it is still in prototype stage, it is an innovative use of technology that enhances the delivery, absorption and transmission of knowledge and feedback during the training of teachers and also the post-training phase. digi-TEACH focuses on enhancing teaching skills through comprehensive mapping of curriculum and training programmes. These are broken down into micro-modules on a custom-designed software platform and housed in the digi-Library, a digital repository of open source reference material available on the web. This enables trainee-teachers to access the latest knowledge capsules 24x7, while saving the cost of paper resources for the institutes.

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Mission Finland
By Hippocampus Learning Centres

A majority of rural school children by age 6 do not have access to a learning environment that greatly impacts their cognitive and social development. Despite its critical role, primary school is only available to a minority of children from wealthier backgrounds. The organisation provides primary school education to rural students through a centre based model. A fast growing organisation Hippocampus has developed a number of mobile solutions to help ensure standardization of education provided as well as effective monitoring and evaluation tools.

The first solution maps parameters such as student enrolment, attendance, student’s details and assessment. Another mobile app helps teachers understand the gaps in their students learning and develop an individual learning plan for each child. The organisation is the largest kindergarten chain in Karnataka with more than 80% of its work being focused in villages. Since the implementation of its various mobile solutions the organisation has been able to see an overall increase in productivity by 10% in just 1 year and has directly reduced the work load of field staff by 40%.

Enumeracy
By Theertha Info Solutions

The subject of mathematics remains a serious pain point for many children across rural India. Recent findings suggest that only 26% of children in 3rd standard do simple subtraction while only 25% could do simple division. Theertha has developed an E-Numeracy Learning kit allows students to learn basic arithmetic and math in a quick and affordable manner. The kit consists of 9 CD-ROMs that use multi-media and gamification animation technology to impart mathematical concepts to children making learning both fun and interactive. Concepts are based on vedic math logic and are taught mainly through activity based learning. In the last year alone over 400 students purchased the CD’s out of a pilot group of 1,200 students. The organisation aims to target students from low income groups studying in CBSE schools, hoping to target over 5 million youth by 2021.

CG Slate
By ConveGenius Global

As education still remains largely inaccessible and unaffordable to the masses, children from the underserved communities struggle to compete on global standards. Furthermore with India’s vast linguistic diversity, finding appropriate educational content for communities with different languages still remains out of reach. The organisation has therefore developed an interactive ecosystem that curates existing educational content developed by local content providers and converts this into interactive educational games aimed at primary school students from low income settings. The content that is available in different languages and region specific, is loaded on pre-sold tablets and is provided free of cost. At the back end the solution uses algorithms to map the users progress so as to improve learning outcomes and relay it back to the relevant content providers and stakeholders to help improve the products. Currently the organisation has deployed CG Slate in Madhya Pradesh and Rajasthan and impacted over 6,500 students till date.
CLTePatashala
By CLT India

One of the main contributors to poor student performance and high dropout rates is shortage of high quality teachers with subject expertise. To meet the Millennium Development Goal of providing elementary education to all children, India will need more than 20 lakh new teachers, the greatest inflow of new teachers in the world. CLT has therefore developed digital curricular for STEM content for 5th-10th standard students in regional languages, from low income settings. Content is developed by in house experts and strong assisted learning models hand hold teachers enabling them to teach better and make classes more engaging. Operating in 23 districts in rural Karnataka the organisation has impacted over 3 Lakh students since 2008.

SKOOL: 21st century skills for kids
By Going to School

Though the primary education enrolment rate in India has drastically increased to over 93%, in India, few students go on to secondary education with many dropping out to pursue employment. This means that most drop outs have not learnt soft skills or skills to pursue employment let alone necessary academic qualification, which leaves them unemployed and without a form of livelihood. To overcome this challenge the organisation has created SKOOL, a compendium of 25 intricately designed stories each focusing on an entrepreneurial life skills such as communication and team work. The stories are both engaging, relatable and easy to understand for children between the age of 12-16 years. SKOOL is an application available on both Android and iOS and can be used on any smart device both in an online and offline mode. The organisation is predominantly operational in the North Indian Hindi speaking states of Bihar and Jharkhand and has impacted over 14,000 students and teachers so far.

Eckovation
By Eckovation Solutions Pvt Ltd

Many times the role parents play within the education system is largely overlooked. Parental involvement in their child’s education can vastly improve both learning outcomes as they monitor as well as help their child learn and grow both personally and academically. Recent statistics suggest that only 15-20% of parents attend parent teachers meetings, and what’s more is that many schools for low income students don’t hold meetings with parents. Ekovation, is an android mobile application that provides parents a tool to monitor and gain visibility into the academic progress of their school going children. Through forming closed private groups on the app, teachers can communicate with parents, informing them on their child’s progress, attendant, school announcements and much more. Communication can be in the form of text, audio or video in real time. The organisation estimates the app will impact over 100 million users in the coming future.

Multi-Dimensional Learning Space (MDLS)
By India Literacy Project

Over 70% of students enrolled in primary education belong to low income settings and first generation learners. Both schools as well as parents are ill-equipped to teach children, with much of the learning happening by rote and with sparse learning material. Furthermore there is little focus on building their soft skills and skills in non-academic areas. To combat these shortcomings the organisation has developed a Multi-Dimensional Learning Space (MDLS) as an afterschool program which aims at building the life skills of students. MDLS takes the form of a smart classroom, with learning material both from and beyond the curriculum being developed by the organisation and delivered in audio
visual format to make learning more engaging. MDLS are set up in any schools that have the required infrastructure, with a pilot being run in Government schools across Karnataka.

Knowledge Reach
By Golden Age Software Solutions Pvt Ltd

Due to poor teaching quality many students are left confused and miss out learning important concepts and topics, which result in poor performance. This gives them no choice but to use online material found on the web to try and aid their learning. However much of this is time consuming and the material that is found is often a time complex. The organisation has developed a search engine for schools that allows students to search and find relevant content on any topic of their choice. The search engine ensures that content is interactive, easy to understand and engaging, limiting the amount of unnecessary commercial material and wasted time of students. The output from the search engine is also mapped to students' academic curriculum through collaborative e-learning tools, for enabling anytime, anywhere teaching and learning paradigms by schools, teachers for their students. Still in its early stages the organisation would like to scale the innovation globally.
SKILLS AND EMPLOYABILITY

Skilling is the way forward to a productive future

As a Trustee of NASSCOM Foundation and a member of the IT industry for close to 20 years, it has been my privilege to be instrumental in the growth of the industry which now contributes 7-8% of India’s GDP. The Indian IT industry is recognized world over for its services competence and plays an important role in knowledge management, digital and start up sectors.

This transformation has been truly egalitarian in creating a ‘flat world’ where merit has driven results without the traditional barriers of space, time, and background being impediments. The fundamental competence of this sector has to deliver innovative solutions at scale. This has happened not just in the corporate sector but within the government such as Aadhar, various land record programs, and others.

The Indian government has been supportive of ICT, but recently with the Prime Minister’s Digital India and Startup India initiatives coupled with changes in laws especially for CSR, the drive for social change using ICT has gained momentum. NASSCOM Foundation has taken up the call for driving inclusive growth in a big way with multiple programs. One of the major focus areas is Education and Skilling which is a fundamental building block for unlocking the human potential both individual and societal. Therefore it is not surprising that out of the 3.3 million NGOs in India, over 50% of them support programs for ‘education to employability’. Nirmaan Organization, a non-profit youth movement is already leveraging the power of ICT to service the employability requirements of the rural underprivileged. Using toll-free tele-counselling and mobile and web applications, they aim to bridge the information gap in the employment ecosystem and integrate the three stakeholders – the job seekers, trainers and employers. Similarly, Rankskills Knowledge International has created an online platform that bridges youngsters from tier 2 and 3 cities with SMEs and start-ups in larger towns and cities, thus fulfilling the needs of both the employer and the employable.

During the recently concluded NASSCOM Social Innovation Awards a significant number of the entries were in the education sector where they were leveraging ICT technologies to drive:

• Solutions for scalability of their programs; Productivity and effectiveness;
• Linking & creating stakeholder communities (government; parents, teachers, students irrespective of educational / language capability);
• Leveraging the learning content across languages; building English language skills;

• Skills to mainstream people with physical disabilities so that they are employable (over 70 million people).

The efforts are amazing and most of them are bottoms up and community driven supporting the formal education sector. Samarthanam Trust for the Disabled focuses on empowering rural disabled youth by imparting vocational and skills training specifically tailored to find them gainful employment in IT/ITES/BPO, Retail, Hospitality, Banking and Insurance, and Garments sectors. Technology is an integral part of this strategy and they endeavour to use available products and software to make the tasks for the non-disabled easily accessible by the disabled and visually impaired. They have also been credited for giving India its first visually impaired woman Chartered Accountant.

The way forward will use IoT [Internet of Things]; it will need to link evolving technologies in healthcare, science, space and other applied sciences so as to create a pipeline of employable talent for the new sectors.

Deutsche Bank has been actively engaged in the area of education for years, and one of the learning that we have is that the problem is immense and a lot needs to be done to ensure that 150-200 million people are provided the relevant skills and education to be effectively employed.

Given the size and scale of the challenges, I am a firm believer that only technology based solutions can cover the largest number of people in the shortest possible time – ‘computers’ are an aspirational target for people from all walks of life. In this context, NASSCOM’S Tech for Good will play a strong role in reducing the digital divide, improve quality of education and skills development irrespective of location, backgrounds to increase opportunities for all.

The IT Sector in India has had the unique experience of having growing rapidly and those of us in this sector have been exposed to immense opportunities. This has given us a massive sense of self belief in being able to make things happen. Hopefully Tech for Good will unlock similar opportunities and self confidence for many more!

Sandhya Vasudevan
Managing Director and COO
Deutsche Bank Group, India
What started as a simple fever for Rajani Gopalakrishna ended up as a near-fatal Penicillin allergy caused by a doctor's gross negligence. The allergy attacked her entire body causing Steven Johnson’s Syndrome, a condition that permanently impacts one organ of the body. Unfortunately for Rajani, it impacted her eyesight, gradually leading to blindness. At the age of nine, instead of playing with her friends, she was confined to a hospital bed.

Despite the physical and social challenges, Rajani managed to complete her B.A. Employers’ lack of awareness and prohibitive attitude towards visual impairment proved to be an impediment in finding a job. With limited vision, she pursued her CA qualification and cleared the Intermediate examination in the first attempt. By this time, she was completely blind. She was forced to discontinue her studies since all study material was inaccessible. Then one day, she was introduced to Samarthanam Trust for the Disabled, where she learnt to use JAWS (Job Access With Speech), a screen reading software. She mastered the application, passed her CA in 2002 and found employment in The Indian Hotels Company Ltd. Today, Rajani has earned the distinction of being the first visually impaired person to qualify in the CA exams and works at Infosys.

It was a desire to enable success stories like Rajani’s that motivated Mahantesh G.K. to set up Samarthanam with his friend S P Nagesh. An offshoot of their own experiences of the gaps and obstacles they faced as visually impaired people, their mission was to enable underprivileged youngsters to have access to quality education by harnessing the latest technologies, which would bring them gainful employment opportunities. Or, to put it in Mahantesh’s own words, “to be able to equip them to live a life of dignity”.

“My vision is to make every child or person with disability a contributing citizen and tax payer of our country.”

Mahantesh G.K., Founder Managing Trustee, Samarthanam Trust for the Disabled

Prateek Madhav
CEO

Mahantesh GK
Founder Managing Trustee
Equal opportunity for all – any caste, age or disability

Samarthanam believes that people with disability constitute a potential workforce that can handle most jobs. The opportunities are plenty, but skill gaps pose a major barrier resulting in mismatch between opportunity and talent. Lack of awareness in the employer, colleagues’ mindsets, accessibility (infrastructure & IT) are other barriers.

For people with disability from the underprivileged sections, these hardships are exacerbated due to lack of resources and access to education. What differentiates Samarthanam from other similar NGOs is their focused approach towards empowering rural disabled youth who are highly underserved and lack opportunities. Vocational and skills training are provided to them with a goal to find them gainful employment in IT/ITES/BPO, Retail, Hospitality, Banking and Insurance, and Garments sectors. This ensures better livelihood opportunities, equality, and economic security.

To achieve this, Samarthanam has created Livelihood Resource Centres (LRCs) which function as a one-stop solution that provides high quality sector-specific training endorsed by stakeholders that include employers, financial, training and marketing institutions.

Samarthanam focuses on inclusive education, training and livelihood, community rehabilitation, well-being, environmental sustainability sports, culture, social enterprise and women empowerment. The holistic approach provides a strong platform to make people with disabilities tax paying, contributing citizens of India.

Milestones

- **1997**
  - Registration of Samarthanam Trust for the Disabled; initiation of higher education program; promotion of cricket for the blind and other sports

- **1998**
  - Establishment of two residential facilities for female students

- **1999**
  - Inauguration of ‘Techvision,’ a centre imparting IT training for persons with visual impairment

- **2000**
  - Special school for students with intellectual disabilities established

- **2004**
  - High school recognised by Govt of Karnataka for students with disabilities and those from underserved communities is established

- **2011**
  - 'Kirana,' a BPO is set up at Bidadi to provide employment opportunities to underprivileged and disabled youth in rural areas

- **2011**
  - Samarthanam Trust for the Disabled steps up to be a pan-India organisation; livelihood programs launched in four states; District Disability Rehabilitation Centre (DDRC) established in Ramanagara District marking the beginning of community based rehabilitation activities

Converting available technology into an advantage

Technology has been integral to Samarthanam’s strategy of empowering people with disabilities and they endeavour to use available products and software to enable technical knowledge, economic and social independence and a comfortable life for the visually impaired in particular, and people with disability in general. A combination of mobile, software, webbased solutions and hardware are used as assistive, adaptive and rehabilitative devices.

Assistive software programs for visually challenged include:

- JAWS (Job Access With Speech), a screen reading device
- NVDA (Non-Visual Desktop Access)
- Optical Character Recognition (OCR) software like Kurzwell and other software that convert print material to audio formats through DAISY (digital book production)
- Tactile diagram based computer courses

For the hearing impaired:

- Sign code related study materials in video format and lectures
- Recorded and stored phrases and words commonly used in daily interactions Sign code related study materials in video format and lectures
- Digital Accessible Information System (DAISY)
- 6 digital libraries across Karnataka

Text books, novels and other reading material in e-book format or as digitally recorded audio format
“It is Samarthanam who created a platform to specially connect volunteers with students for learning purposes which changed my aspirations towards pursuing academics. I especially had the opportunity to learn computers during the early days of my association with Samarthanam, which changed the way I viewed myself. I forgot that I was a person with visual impairment because I was able to operate computers and lead a dignified life.”

Suresh Reddy, Senior Business Consultant – Analytics, Accenture

Impact

Samarthanam focuses on education and skilling for Persons with Disability (PWD) and has redefined the traditional 3-step Skilling Model (Mobilising-Training-Placement) to a 3-1-2-3 Framework. This essentially means that before mobilization, the team visits the industry to prepare a detailed report of the specific skills required to serve their business. These skills are then mapped to the disability basis the challenges and experiences of the PWD to find the right fit and accordingly source the candidates. The 3-1-2-3 framework has yielded tremendous results with respect to skilling Persons with disabilities. The below initiatives of the trust demonstrates commendable impact in the lives of the disabled:


• Produced India’s 1st Visually Impaired Woman Chartered Accountant

• 6580 semi-educated or jobless women gainfully employed in many organizations

• Training and placement services provided to 7000+ disabled youth till date

• 6 Livelihood Resource Centres (LRCs) in Karnataka state (Bidadi, Bangalore, Dharwad, Gadag,Belgaum, Bellary) and 1 centre at Jharkhand

• Created large sensitization programs to burst the myths about disability

• 4000 children graduated from reputed institutions

• 5 visually impaired students studying in IIMs

Samarthanam technology-based skilling

• Market Demand
• Sensitization
• Creation of Roles Vs disability

(1) Mobilize PWDs

• Awareness
• Mobilization
• Enrolments
• Career/ Aptitude Mapping

(2) Training PWDs

• Sector based Curriculum
• ICT enabled accessible courses
• Internship/ Industry experts mentoring

(2) PWDs Placement

• Economic Security
• Placements in corporates/ industrial hours
• Promote entrepreneurship

• Employer Feedback
• PWDs skills upgradation
• Continued sensitization

(3) Employment Mapping

Post Placement Engagement

“Over the years we have striven to weave structure, speed and scale into the fabric of all our projects and partnerships. With Samarthanam poised at the cusp of an incredible growth phase, innovation, industry driven requirements, skill development and technology are driving our attempt to leverage the impact and reach of Samarthanam through LRC.”

Raj Rajkumar, Director & Site Leader, TE Connectivity Services CSR Head for TE Connectivity in India
## Current State

- Existing 7 training centers
- 6 centers in Karnataka state (Bangalore, Bidadi, Dharwad, Gadag, Belgaum and Bellary) and 1 center at Jharkhand
- Inclusive Model: Persons with Disability and underprivileged youth
- Residential Programs
- Experience in training in IT/ITES/BPO, Retail, Hospitality, Garments, Banking & Insurance sectors etc

## Future Focus

- Vision 2020: to touch 100,000 lives of persons with disabilities each year by 2020
- Develop an exclusive Samarthanam mobile app to manage various time-consuming or dangerous activities for the visually challenged. This will include OCR, a GPS customized for the blind, a collaborative platform for networking, a job portal, an e-book reader, and a dedicated helpline
- Skill 10,000 differently abled youth in three years and reach a target of 15,000 by five years
- Add seven new Livelihood Resource Centres (LRCs) to the seven existing ones

## Industry Driven Sustainable Model

- Curriculum driven by emerging sector leaders
- Accessible centers with well trained facility
- Residential training and BPO set up
- Corporate tie-ups for volunteers and certifications
- Network with training institution and industry
- On-the-job training
- Guest lectures by industry practitioners
- Site visits to various organisations
Harinath lives in the tribal area of Bhadrachalam of Telangana. Harinath wanted to complete his graduation, but an accident forced him to drop out of college. When his father passed away and he needed to support his family as his mother was a daily wage labourer. Without losing hope and not giving up, he joined a government run Youth Training Centre and completed a course in computers. But without a proper education and no means of moving to a bigger town or city, Harinath’s future looked bleak.

In India today 36.6% of rural youth of ages 15-29 years are graduates and above and are unemployed. Adding to this are other problems of the Indian employment ecosystem which include huge demand-supply gap in manpower requirements, mismatch between opportunities available and aspirations of youth, low industry collaboration in skill building, inadequate exposure to modern tools and techniques and over qualification for work. Harinath’s case is a common one- witnessed in not just villages, but in small towns all across the country. The socio-economic constraints in India and lack of accurate and authentic information on various career related aspects exacerbates the issue.

For Nirmaan, a non-profit youth movement started by a small group of BITS-Pilani University students in 2005, addressing the needs of the underprivileged like Harinath was of critical importance. They launched Yuva Disha, to meet the demands of training partners, employers and job seekers and in order to bridge the demand-supply gap by utilising their placements expertise. Yuva Disha is an end-to-end service for youth employment that brings together on a single platform the three key players i.e. job-seekers, employers and training providers.

It was through Yuva Disha’s placement drive organised for students from ITDA Bhadrachalam that Harinath found employment as a data entry operator with Karvy, a financial service provider.

"We want to see a society where every youth will get equal opportunity to stand up on his or her own feet. To contribute to this mission, we have conceptualized Yuva Disha project. We are confident that we will be able to make a dent in the under privileged youth unemployment rate."

Mayur Patnala, CEO and Co-founder Nirmaan Organization

Mayur Patnala
CEO, Nirmaan Organization
Yuva Disha – giving direction to the unemployed and employers

Yuva Disha aims to bridge the information gap in the employment ecosystem by leveraging ICT. For rural youth in need of employment, Yuva Disha is an end-to-end service provider with an integrated host of services that caters to their requirements by offering:

• Job/career guidance and counselling (demand side candidate engagement): Expert counsellors help youth choose suitable careers based on their interests, skill sets, industry demands and growth prospects.

• Recruitments extension (Supply side industry engagement): A database of all available job opportunities is maintained and suitable candidates are selected accordingly.

To safeguard the students, Nirmaan has drafted an employer policy and grades employers based on candidates’ feedback and the recruits are sent only after a due diligence process and mutual agreement on the employer policy. Nirmaan intends to address other risks such as retention rate, migration to urban areas, cultural barriers and other issues by identifying local job opportunities in the long run and integrating job counselling into the model.

Using the power of technology to empower

ICT forms the backbone of Yuva Disha, enabling a larger scale of operations and thus providing larger numbers of youth with a sustainable livelihood.

1. Tele-counselling through toll-free helpline: provides accurate and authentic information on demand on various career related aspects including availability of job opportunities, skill development programs, internships and recruitment drives.

2. Mobile/Web applications: services like job and career counselling, training extension and recruitment can be accessed by the youth on their mobiles or computers. Diagnostic tests can be conducted for the aspirants and expert counsellors can guide them through live chat or video calling. Employers and trainers can access a database of student profiles and vice versa to enable all stakeholders to take informed decisions.

3. MIS: for better data management and integrating the three ecosystems.

Milestones

2006 – 2010
• Nirmaan grew starting from 6 volunteers to 500+ volunteers, working with underprivileged children and women

2010
• Vidya Helpline launched providing toll-free helpline for career guidance to rural school children. Around 2 lakh children were guided in next 5 years

2014
• Employment linked training program for underprivileged youth of Hyderabad

2014
• 45 full time employees run the operations of Nirmaan, reaching out to 50,000+ beneficiaries through projects in livelihood and education

2015
• YuvaDisha project piloted
Impact

Number of rural youth counselled: About 1000 youth through skill development program and 260 youth through Yuva Disha

Number of rural youth trained: 600 through the skill development program since June 2014 on foundation skill that include Fundamental IT Skills and Communicative English.

Number of rural youth employed: 350 youth through skill development program and 130 through Yuva Disha

Retention rate: 71% - 47% of those placed are continuing in the same job; 24% have moved to a different job; rest have either quit their job or are pursuing further studies

Future Focus

- Reach out to 5 lakh+ underprivileged rural, tribal and urban youth. Over the last 5 years they have provided career guidance to 2 lakh+ rural school kids through the Vidya Help Line (VHL) project. With 5+ years of experience in skill development programs for women and youth and the operational understanding of technological capabilities and capacities gained through VHL project, they are confident of reaching 2 lakh youth in 3 years.

- Yuva Disha mobile app installed in 5 lakh+ devices in the next 5 years

- Identify revenue generation models to self-sustain the project and reduce dependency on donations

- Establish district and block level resource centers across the nation for information

“Team Nirmaan has actively supported us in facilitating placements for the tribal youth of ITDA Bhadrachalam. I congratulate all of them and wish them the very best in their future endeavours”. D. Divya, I.A.S., Project Officer, ITDA Bhadrachalam, Telangana

“I am earning 6000 rupees per month now and am able to stand on my own feet taking care of my expenses. I am no more dependent on my single mother. Nirmaan has trained me in job workplace readiness and communication skills and helped me in getting a good job as well.” V Harinath, Data Entry Operator, Karvy
Small is the New Big

Helping Small Towners Get Jobs by Rankskills Knowledge International Pvt Ltd

Everybody dreams of making it big, but unfortunately, social class and geographic location can be the biggest barriers, as Prabhunath Sharma, a final year student in an Engineering college in Ahmednagar discovered. None of the big companies even considered his city for campus placements and his poor economic condition prohibited him from venturing into the big cities to seek employment. Then there was also the issue of employability. Did he possess the required social and interpersonal skills the top companies demanded?

Being from a tier 2 city, this situation was not unfamiliar for Chetan Thakre. The numerous online portals did not provide personalised assistance and local recruitment agents’ scope was limited. As Head of IT at Lenovo, Chetan also constantly faced the challenge of hiring entry level service engineers. Most of the applications came from smaller cities and there was no means of checking quality as the recruitment agents barely knew the candidates.

He also heard from his friends who ran small and medium enterprises (SMEs) about the challenges of hiring low cost resources at entry levels. Though hiring freshers from smaller towns would be the perfect solution, there was no means to reach out to them with available opportunities.

This is a problem that is faced by many of the big and small companies in cities. There is a big group of skilled youth that they are not able to tap and hence continue to face hiring challenges. The medium to efficiently match supply to demand just does not exist.

What was required, thought Chetan, was a larger, cohesive universe of career opportunities that would bridge youngsters from smaller cities with SMEs and start-ups. With this vision, he set up Rankskills Knowledge International Pvt Ltd, with the commitment to bring employment and employability opportunities to fresh graduates of tier 2 and tier 3 colleges.

“We are expanding universe of career opportunities for youngsters at grass-root level with scalable hyper-local system platform. It is an idea whose time has come.”

Chetan Thakre, CEO, Rankskills Knowledge International Pvt Ltd
Bringing small town fresh talent closer to SMEs and start-ups

Rankskills is India’s first online platform that focuses on taking SMEs and start-up employment opportunities to deserving talent in tier 2 and tier 3 colleges. For the former, it creates visibility of talent from lesser known colleges which helps them take informed hiring decisions by:

• Helping them reach out to campuses in smaller cities
• Providing online visibility of pre-screened talent and a system to manage the entire hiring lifecycle
• Providing on-ground support through local service partners to manage physical logistics
• Providing unlimited access to fresher database and campus connect platform to connect several colleges online to meet ad-hoc entry level talent need
• Arranging special campus drives to fulfil fresh talent needs at reduced cost compared to consulting fees paid to placement agents

Individual students, colleges and training institutes can create profiles and display their talent on the platform. Analytics helps match employer requirements with available talent at individual and institute level and automatically opens a secured communication channel between the two once the right match is found. Rankskills targets at least 10 individual matching profiles and at least 3 colleges / training institutes who can provide fresh talent to the potential employer. Each local edu-entrepreneur partnered with should be able to help at least 4 deserving youngsters to find the right employment opportunity per month. Rankskills is also tracking the utility of personality profiling based on an online assessment with employers.

Providing employment along with improving employability for the fresher is important from a social perspective. Youngsters in smaller cities lack professional advice which impedes their employability status. Rankskills has built a communication and engagement platform that helps them hone their employability potential through professional tools and mentoring. This combined model to meet both employment and employability needs is their unique differentiator. Rankskills 3600 assessment is the most cost effective and comprehensive self-assessment tool available online. It costs at least 50% less than others in the sector and tier 3 cities in Maharashtra i.e. Nasik, Aurangabad, Nagpur, Solapur and Pune and gradually intends to enlarge the footprint across the country.

“Our students are from villages who find it is very difficult to reach out to good employment opportunities. Rankskills has helped us to place many students and to build their career.” Mr. G Muralidhar Bhat, Training & Placement Officer, Padmashri Dr. Vithalrao Vikhe Patil College of Engineering, Ahmednagar

Milestones

Jul 2015

* In early 2015, our system was piloted in Pune, Kolhapur, Noida and Lucknow, through 13 colleges in Maharashtra and UP each.

Jul 2015

* Job fairs were arranged during Oct 2015 in these cities and 52 placements were made in construction and engineering industries.

Dec 2015

* In Dec 2015, commercial model was launched were students and colleges paid for registering. 10 colleges undertook paid assessment of their students by us.

Feb 2016

* Started operations in Aurangabad and Nasik with the help of local partners.

“The assessment at Rankskills not only helped me get shortlisted in a prestigious project management company in Mumbai, but also gave me the confidence to justify why I deserved the job. I got the job, surpassing competition from many students from other well-known colleges”. Prabhunath Sharma, Final year engineering student, Ahmednagar
A flexible platform that offers an end to end solution

The biggest innovation from a technology point of view is building an end to end platform for communication and engagement between colleges/students, companies and training institutes. This involves building a flexible solution which has the capability to handle diverse offline processes followed by thousands of colleges and SMEs and start-ups across the country, on a single platform. The platform is supported by an in-house assessment engine, analytics engine and mobile app. Rankskills is working with a major telephony service provider to build and facilitate telephony based employability improvement services at an affordable price.

Impact

- 60,000 registered students from smaller towns
- Over 2000 job readiness assessments done
- Placements in eight tier 2 campuses
- Over 20 companies with 300 job offers listed

“Rankskills assessment is a very useful to us for pre-screening candidates based on their technical skills and personality traits. It is an excellent tool for objective rather than subjective hiring process” Mr. Hans Christophar, AGM Vector Projects (I) Pvt. Ltd., Mumbai

Future Focus

- Develop SaaS system integrated with mobile app and telephony solution to deliver employment and employability services across India.

- Build relationship with 8 SME and start-up clusters in India. Today SMEs employ around 70 million people in the country. 800+ startups are setting up annually in India and are expected to employ over 2.5 m people by 2020.

- Take SMEs and start-ups to tier 2 and tier 3 campuses for placements.

- Build franchisee network across 44 education hubs in India to deliver excellence on ground support. 2.4 million freshers pass out every year from 16,000 professional colleges across the country with over 95% from tier 2 and tier 3 colleges.

- Take the skilling and livelihood program to talent pool and an employment model for beneficiaries across geographic regions

- Increase the partnership base with industries, manufacturing units, corporate houses and educational institutes

Ideas That Impact 145
SKILLS AND EMPLOYABILITY

SmartWorker
By C360 Marketing Solutions Pvt Ltd

The incidents of unemployment in India remain astoundingly high. With much of the population still illiterate, skilling initiatives and programs hard to come by, lack of government schemes and machinery to implement those policies means that many, especially rural women, are left without jobs. Through its software Smart-Worker360 the organization hires rural youth and women from underserved communities, training them to perform simple digital data tasks such as – removing supplicate data, data correction, enhancing existing data and so on and then connecting them to work and income through their software. Till date, the firm has impacted over 1250 workers and dependants from remote areas across India and Singapore.

baabtra.com
By Baabte System Technologies Pvt Ltd

There is a huge shortfall in skilled resources within the IT industry. This is largely because there is a mismatch between the needs of the industry and skills taught within the academic systems. Through the platform baabtra.com, the organisation aims to bridge the gap between industry and graduates. The platform hosts training content developed either by the organisation or the IT corporates, which is distributed to graduates through training centres, recruitment agents etc. Depending on the student’s performance they are absorbed by the corporate. Currently the organisation is operational within 4 districts in Kerala, but would like to spread national to all Tier2, Tier3 cities.

Edulever’s Employability Index
By Edulever Consulting Company Pvt Ltd

A big challenge faced by skill providers is selecting candidates who are most likely to complete their training and placement successfully. Selection of candidates largely depends on the assessment by field staff and is therefore highly subjective, with many deserving candidates missing out. Edulever’s Employability Index is a software that helps answer this question. It assesses the readiness of a candidate for a job at the time of selection, hence ensuring that only those candidates who are most likely to be placed at the end of the training program, and will hold on to their job, are selected for the program. The index can be used through a computer or mobile app. Currently in its pilot stage the software has the potential to impact millions of youth, and a number of training institutes / corporates across industries.

Unique Skill Identification System
By Asian Educational Trust

Many challenges plague the skilling and employability sector in India. On the employer’s end, inefficiencies by government departments and training providers hinder deserving candidates from gaining employment. While on the other hand many job seekers misuse and duplicate certificates to gain employment. The organisation has developed a Unique ID for job seekers which will carry information on the candidate’s skills, qualifications, education and personal information. This information can be accessed by corporates along with training institutes and recruiters online which will then help
bridge the gap between job seekers and employers in a faster, more transparent manner. The innovation is estimated to impact over 25% of unemployed youth in India presently, with a long term vision to scale pan India.

Master Coach
By QUEST Alliance

With the growing demand in vocational training to meet national goals, there has been a renewed focus not only on the type and number of candidates getting skilled but those trainers doing the skilling. Many trainers lack up to date knowledge and skills to conduct successful training due to unavailability of ongoing support. This has resulted in under-skilled job seekers and hindered the quality of candidates entering the job market. The organisation has developed Master Coach, a technology based training full of interactive and engaging material for facilitators, seeking opportunities for professional growth and learning. Calls by mentors is also part of the entire solution. Till date the over 41,000 students and trainers have been impacted across 6 states in India.

Empowerment Through Skill And Employment
By SETU

As India is only beginning its transition from an agrarian economy to that of a services led economy, the demand for skilled resources has never been higher. And though there have been numerous efforts at skills training, many courses and certifications don’t take into consideration the contextual needs, requirements and various disadvantages that face youth especially those from underserved communities. SETU provides tailored skills training to youth, based on their literacy levels. For instance illiterate youth will be trained in tailoring while literate youth are provided training in IT tasks and English skills. Many audio visual aids are used during training sessions, especially for illiterate and semi-literate candidates. Till date the organisation has impacted over 15,000 youth in the NCR region helping them find formal employment.

Hiree.com
By Abhiman Technologies Pvt Ltd

Today though there are millions of job candidates available in the market, hiring solutions are ineffective due to their inability to match the right candidate to the right job. Openings take up to 5-6 months to close, with many deserving and qualified individuals missing out. Hiree simplifies and brings about efficiencies within the entire hiring process. Using a smart matching algorithm which focuses on job seekers activity signals to provide the best and quickest match to recruiters. The solution has features such as real time alerts, private messaging and their Android App allows for recruiters and job seekers to connect over Whatsapp and SMS. With over 2500 candidates successfully placed the organisation has a physical presence in 5 cities and a digital presence pan India.

GUVI
By GUVI Geek Network Pvt Ltd

There is a large gap that exists between the skill demands of the IT industry and the current skills of present day graduates. This is because there is little alignment between academic courseware and industry requirements, which has led to high rate of unemployed youth in the job market. The organisation has therefore created an online platform.
One of the main facets of an inclusive society is equality of opportunity for all citizens — access to the same public resources and similar facilities. However, in the case of persons with disabilities, providing this equality is very often a very tough possibility.

Accessibility in general refers to the ability of people with disabilities (PWD) to access products, services, environments etc. to carry out their activities of daily living (ADL). ADL include walking, speaking, eating, accessing toilets, roads, public transport systems, schools etc. The increasing shift to “digital”, has inflated this list of ADL, including activities like access to social media, online reading material and the resources on the internet. While these are commonplace for the digital citizens of today, PWDs face access barriers to these resources as well.

Recognizing the fact that inclusion of persons with disability would be the cornerstone of a truly inclusive India, the government recently launched the Accessible India Campaign or the Sugamya Bharat Abhiyaan. Under the aegis of this campaign, the Ministry of Social Justice and Empowerment aims to achieve many forward looks objectives such as making 50% of all government buildings and public documents accessible by mid-2018. The campaign will also address the accessibility of transport systems and information and communication ecosystem accessibility.

Technology can be an enabler for PWD to carry out their daily activities without help. In the past, technology solutions like screen reading software, walking aids etc. have helped assist PWDs in leading an independent life and aided their livelihood opportunities. While technology advancements continue to create change, easily deployable, cost-effective innovations are essential in this context. Especially in the field of accessibility solutions, easy to use and adopt, cost effective solutions are the need of the hour.

Many start-ups and NGOs are deploying solutions that work towards bettering the lives of PwDs. Gingermind Technologies’ solution Eye-D aims to make navigation easy for the visually impaired, enabling them to travel independently. Enability Foundation’s device Tactograph helps create tactile books with images that can be used by children with visual impairment to promote learning. Innovision’s BrailleMe takes Braille to the digital zone, aiming to make all e content and conveniences of the internet available to the visually impaired. The common facet of these solutions is the focus on solving real challenges faced by PwDs with simple yet effective solutions.

There exists a wonderful synergy between technology and society. While technology enables the society in social, economic, and environmental sustenance, society in turn shapes technology for its own needs. Typically, social speed of adoption is way slower than that of technology, business and academia. Society adopts anything new only when it meets lifestyle needs, culture, affordability, simplicity, and usability. Hence it is important for technological innovations to have the right mix of technology, affordability and ease-of-use.

Before inventors start thinking of innovations for PWD, it is essential that they conduct a detailed ethnography study on a volume of PWD to understand the real needs, pain areas of the existing solutions, the skipped steps, their confusions, over-exertions, and appropriations. It always helps to get the idea of the product endorsed by physiotherapists and occupational therapists who have a better understanding of the needs and problems of PWD. Only products thus created based on the results of a detailed study have the potential to reach and help more and more people with disabilities.

Abraham Moses
Head, Mindtree Foundation
Learning with the aid of images and pictures is not just fun, it is effective!

A map can teach us more about geography than a long paragraph, the pictures in a story books tell us so much more than the printed word. To most of us, this is an obvious way to learn and grow, but not for children who are visually challenged. For them, learning is different as more often than not, they are not able to relate to many ideas or identify with images, pictures or objects as their sighted peers and don’t make connections as easily. In a world full of innovation and technology, the need to enrich the experience of the crucial younger years of these children was an urgent need - one that was responsibly met by Chetana Trust.

Several years ago, Chetana Trust took five children’s books from a local publisher and made 100 fully accessible copies. The hand-made process was labour intensive, and the educational results were spectacular. They tested the developed books in village schools among first generation learners, in inclusive preschools and across children who had varied disabilities. The results were the same – the tactile images drew and kept the attention of all children, with and without impairments, helped them understand the story, and freed their minds to imagine and discover in rich and wonderful ways. Children, teachers and families begged for more books and greater numbers.

This request for greater numbers could only be reasonably met with some form of mechanisation. Existing technologies were expensive and exclusive, which raised the question of whether a machine that subsides costs and produces books in mass quantity could be invented. The answer came in the form of Tactograph by Enability Foundation for Rehabilitation.

Enability Foundation’s innovative solutions were focussed on delivering superior assistive technology solutions to the disadvantaged sections of society. Enability recognised a largely ignored issue and created Tactograph – a cost-effective machine which makes reading material accessible for the visually impaired by reproducing existing printed images into modified tactile images.

Pradeep Thangappan
Managing Director,
Enability Foundation for Rehabilitation

Dr. Anil Prabhakar,
Professor, IIT Madras

Dr. Namita Jacob,
Project Director,
Chetana Charitable Trust
Tactograph: A machine that frees the minds of visually challenged children

The Tactograph aims to make tactile books for children easily available and make them easy to read. Tactograph requires very little training for independent use and is free of complications, just as books should be.

The Tactograph is a motor controlled pantograph that traces out a predefined picture using a fluid adhesive. Simple geometric shapes like squares, triangles, stars and even more complicated ones like a car, or the phases of the moon, can be tactiled on ordinary paper and used in a classroom with children with attention, learning and vision impairment, to engage and hold their attention, help interpret and retain information and fuel their imagination.

Tactograph creates significant impact by leveraging the intelligence of touch and feel. By printing picture books, transparent colour light sheets and sign boards, the teachers can feed images in their minds and unleash creativity. By making use of a very low cost and easily accessible fluid adhesive for printing, Tactograph succeeds in lowering the device cost to INR 20000 and also allows teachers to build customized lesson plans for less than INR 10 – a modest price to pay for building a future for these kids.


The basic design of The Tactograph was developed through the Center for Rehabilitation Engineering and Assistive Technologies (CREATE) at IIT Madras, with constant feedback from end users and experts. The task was to create a machine that is easy to access. A microcontroller is used to control the complete Tactograph system by getting the commands from the user side software running in the PC. The communication between the Tactograph and the PC is established with USB interface. A Graphical User Interface (GUI) was developed to control Tactograph with image recognition algorithm. With this special algorithm, users can print in just three mouse clicks.

Tactograph also conceived a first of its kind fluid administered tactile image reproduction principle. This basically helped the user/teacher to create customized lesson plans with great ease. By developing a microcontroller, the Tactograph made the process as easy as 1-2-3.

The quality of the lines and images is excellent and the beauty of the original picture can be kept intact simply by using colourless Fevicol. The material made can thus stay useful to children with and without vision while augmenting everyone’s experience.

Milestones

2009
- Accessible Reading Materials (ARM) project by Chetana with Tulika Publishers

Nov 2011
- Patent Application No. 4091/CH/2011 field

Sep 2012
- IITM students win 3rd prize for the Tactograph at IEEE AIEEEUM 2012

2013
- SSA training on creating tactile books

Apr 2014
- IIT Madras supports the Tactograph as a Socially Relevant Project (SRP)

Mar 2015
- Tactograph v2 is released

2015
- Tactograph demonstrated at EIVOC conference, Mahabalipuram

Feb 2016
- Awareness workshop and competition among inclusive schools around Thiruvallur and Chennai on “Exploring Tactile Media as a learning tool in inclusive education”

Mar 2016
- Tactograph in production
Impact

Since its inception, the Tactograph has completely lived up to its potential. A series of videos captured showed children responding to the tactile images in the most excited way, just as children should. It impacted not just the children, but the entire system.

- Special Schools: On testing the pace of learning new shapes with tactile images, children with vision disability were found to grasp new shapes faster. This impacted the method of teaching, and teachers were appreciative about the concept of building customised lesson plans and activities for children, which coherently resulted in a more imaginative form of learning.

- Community Centers: Visually impaired children can now attend tactile demonstrations during a story-telling event for an explanation of a scenario, an experience that was previously unavailable.

- Book Publishers: Tactograph could be set up at book publishing units where tactile books can be printed based on print to order. Certain books on special request can be converted into tactile print, which is made available to schools where inclusive learning is given importance.

- Block Resource Centres, SSA: Testing across children with a range of disabilities brought an awareness about the power of the tactile element to draw and hold a child’s attention. During the testing, a child with ADHD and emerging speech sat through the entire reading, touching each picture and even initiating a few words; a child with autism who usually tears books was captivated by the tactile pictures and returned to details repeatedly, exploring and then looking at the adult for explanations and words. Teachers were convinced about the value of the images and excited at seeing unexpected ability demonstrated by their own students.

“Tactograph has opened new ways in creating tactile materials for visually disabled children and it helps in creating similar impact as in getting a visual experience. Especially early intervention children, had enjoyed reading tactile books and the impact was lasting. Children asked for more sessions using tactile books. This inspired us to learn more about the Tactograph and the ways in which tactile lesson plans can be made using the same. The tactile aids we prepare using other means is tedious and does not last. Whereas the aids prepared using Tactograph last longer and helps us experiment differently. It is important that every school has a Tactograph.”

Deepa and Sangeetha,
Teachers from Sethu Bhaskara Matriculation and Higher Secondary School, Ambattur, Chennai.

“When I held the first tactile book, I did not want to return it. I’ve been visually impaired for longer than I can remember. Never have I had the chance to read my little girl (sighted) a story. This book would be the first time I would be able to do so.”

Garimella Subramaniam, Journalist, The Hindu
Future Focus

• Set up a manufacturing and training base for the Tactograph

• Reach a minimum of 200 special schools in Tamil Nadu within 2 years.

• Extend the utility potential of Tactograph in all schools that give importance to inclusive education.

• Scale up in terms of bettering the product's features in order to lead to efficient and low-cost automated tactile printing.

• Create and establish an open source platform for innovation contribution and support.

• Increase the demand across the country and licence the technology for manufacturing multiple numbers.

• Address the international market and take the innovation on a global platform.
In 2012, Gaurav Mittal was visiting the National Association for Blind when a conversation with a computer programmer who was visually impaired changed his life. That day, Gaurav understood the depth of their struggles. He could clearly observe how technology, which has made lives easier for sighted individuals, was largely inaccessible for the visually impaired. This sad truth made him wonder why there was no notable assistive technology for them. He could not find an immediate answer, but the experience made him want to find one.

Although we have a sense of their battles, none of us can fully comprehend the daily obstacles faced by the visually impaired. For simple tasks like going to the ATM machines, stores or restaurants, to finding a bus stop, the visually impaired are dependent on their friends and families. There are 39 million blind people in the world, with over 19 million just in India - for Gaurav this was a more than large market to address.

Eye-D, an acronym for Eye Device, was initially a hobby project that started gaining a lot of attention at events due to its undeniable potential. Interactions with users only reiterated the necessity and market for a product like Eye-D – a portable, durable, economically viable and easy to access device. The growth of smartphone adoption by the visually impaired, indicated that a web and mobile application based solution would be apt. Over the years, Eye-D has, ideated, iterated and innovated from standalone hardware to an app and an assisting hardware product. The app addresses outdoor navigation needs, while technologically advanced hardware further improves accessibility, in the most intuitive way.

For many visually impaired people, Eye-D can provide the much needed independence.

"There are numerous ways in which technology can benefit the visually impaired. Eye-D keypad is our first baby step to enhance smartphone accessibility. We dream that one day, millions of VIs across the world will find it easy to adopt to touch smartphones with Eye-D keypad and experience the digital world in the same way as everyone else."

Gaurav Mittal, Founder Director, GingerMind Technologies.

![Gaurav Mittal](image)

Gaurav Mittal
Director,
GingerMind Technologies Pvt Ltd
Eye-D: A Personal Assistant for Visually Impaired.

Eye-D helps people with visual impairment navigate their paths easily, allowing them to travel and live without the need for a constant companion. The Eye-D app notifies user of his current location relating it to nearest landmark, assists users by providing them with a hurdle-free path and offers a special step-by-step navigation system that accepts voice and touch input to reach common places like ATMs, banks, stores, restaurants, nearest bus stops, and also indicates the approaching bus stops while travelling. To make their daily activities easier, the app can help with a variety of simple tasks – picking desired clothes by detecting colour, detecting currency, reading out printed material. Unlike the cane technology, which is confusing and unaffordable for most users, the Eye-D app is free and is available on Play Store.

Tech that can better 285 million lives

Eye-D leverages the existing capabilities of smartphones by using its GPS and Compass for accurate location detection and navigation. A version of Eye-D hardware uses Intel’s hardware platform. This enables Eye-D to process natural language into commands for smartphones, which results in a voice feedback to the visually impaired. The phone’s camera is used for Optical Character Recognition (OCR), which helps them read printed materials. Sensors serve as obstacle detectors by providing feedback in form of vibration and beeps.

Key Milestones

- **2012**
  - Arduino based first obstacle detecting prototype built (face detection ability added in 2013)

- **2014**
  - Improved prototype given for community trial. Move from standalone hardware to accessible hardware in late 2014.

- **2015**
  - Standalone Eye-D app released. Assistive Smart Band prototype built.

- **2016**
  - Eye-D Keypad industrial design complete

Measuring Impact

Eye-D Keypad is in its prototype stage and Eye-D app has 300 downloads with 200 active users, in a short period since its beta launch online. These downloads have been 100% organic and there is very positive feedback from users.

Aryan, a current user of Eye-D is a visually impaired prodigy teenage national level chess player from Mumbai. He, like many visually impaired individuals, found it extremely hard to travel on his own. In his case, it was even harder because travelling is a need for his passion to play chess. The emergence of Eye-D has been like a breath of fresh air for Aryan. He says all the features Eye-D provides are a must have for all visually impaired across the globe. He now uses Eye-D under parent’s supervision to explore the places he visits for chess tournaments.
Future Focus

• Grants to be raised for industrial production.

• To launch Eye-D Keypad: an easy to use, multifunctional miniature keyboard for smartphones to bridge the accessibility gap for visually impaired.

• To launch Smart Band: Wearable smart band for visually impaired to track vitals, whereabouts and ease smartphone use with minimal effort.

• To launch Eye-D Cam: A high end image processing device for developed markets which will process objects in real time keeping user aware of the surroundings.

“We are very much impressed by the Eye-D navigation app. We like the “Where am I?” feature which we use when we visit new and unknown places. While travelling “Bus Mode” helps us get down at the correct destination. Features like “Nearest bus station”, “Around Me/ATM”, etc allow us to find the correct places. The Eye-D team seems to be open to feedback all the time and ensures that our feature requests are integrated in their next releases”. Siddhant Chothe, Co-Founder TechVision, Pune

“It is truly remarkable how Eye-D has developed such deep empathy with the visually impaired in identifying the actual underlying need to smoothen the technological transition, This only sincerely it is devoted to create solutions that involve inclusive growth. Meshined Design is honoured and privileged to partner with Eye-D on its vision that indeed takes it beyond visibility.” Karan Patel, Co-founder | Head design, Meshined Design, Bangalore
**Reading Is For Everyone**

**Refreshable Braille Reader - BrailleMe by Innovision**

We’ve all travelled with the pace of the digital age and benefited by accessing the world. The same, however, cannot be said for the visually impaired. Not even close. They can’t access information the way people with sight do. This might not be surprising to know, but the fact that there isn’t any technological aid to make reading available in digital format, certainly is. The ones that are available are highly expensive, and only 10% of the blind population can actually use it.

When Surabhi Srivastava stumbled upon this truth, she was dumbfounded. Surabhi was already leveraging her engineering know-how to create impact in society with Innovision – a company she co-founded with her IIT-Bombay batchmate Shyam Shah. Innovision was focused on solving problems of the under-served, economically weaker segments of society, particularly in the education and healthcare space. After visiting many blind schools, it was clear to the team at Innovision that they had to bring the world closer to the visually impaired, especially at costs they could afford.

The task was to find a solution for 40 million visually impaired individuals globally, of which 90% live in low-income settings¹. Innovision knew that the answer lay with education. Improving education required accessible reading materials. Braille is a common way through which visually impaired people can read information. However with the shift to digital, printed material has become outdated and existing electronic aids are in many cases unaffordable for the masses. Thus began the R&D for developing a low-cost device to connect the visually impaired to the digital world in their native script of Braille.

With the help and guidance of experts at the National Association for the Blind (NAB) and user studies from Xavier’s Resource Center for the Visually Challenged (XRCVC), Innovision was able to create a product that could meet the pressing need for an affordable electronic aid that connects people with visual impairment to the digital age in Braille, thereby improving their education and employment opportunities. Current estimate say, 90% of the persons with visual impairment are illiterate and 70% are unemployed². They decided to call this innovation BrailleMe.

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**Shyam Shah**
Co-founder & technical lead
Innovision

**Surabhi Srivastava**
Co-founder & business lead
Innovision
BrailleMe – Digital Reading Assist Technology Connecting the visually impaired to the world

Innovison, as a result of around one and half years of research, has developed the first ever, low-cost, electronic, refreshable Braille reader. BrailleMe essentially allows the visually impaired to access applications such as MS Office, E-books, social media and other readable documents on digital devices such as a computers, smart phones, tablets etc., giving them access to information they didn’t have before, closer to a life similar to everyone else in today’s world. They can check Facebook, Twitter and they can read an online newspaper. They can choose to write too. Innovision has lowered the cost to about 10 percent of the cost of existing devices, an accomplishment that no other company in the last decade has managed.

The benefits of BrailleMe go beyond accessibility and into job opportunities. The government incentivises the employment of Persons with Disabilities, but in the absence of affordable assistive technology the employability of the visually impaired is low. BrailleMe tackles this issue quite effectively. With BrailleMe, the visually impaired are more independent, more secure and more confident.

"Our primary target or beneficiaries are the blind individuals living in low income settings, who comprise 90% of the total global blind population of 40 million. These individuals are faced with illiteracy (90%) and unemployment (70%) due to a scarcity of affordable resources and poor access to information. Our product BrailleMe is an assistive device which would allow a user to both read and type digitally in Braille at a 10X lower cost than existing products in the market.”
- Surabhi Srivastava, Co-founder, Innovision

One tech. A closer world.

BrailleMe essentially helps the user read and write digitally through electronic Braille. It connects to a parent device - computer or smartphone - and allows them to access information by means of Braille cell output and Braille keypad on BrailleMe. The innovation uses Braille Cell Actuation technology, which forms the core of an electronic Braille display. The Braille Cell technology is responsible for the mechanical representation of Braille through Braille pins, the electronic system’s communication with the parent device and the processing. Innovision has patent rights on this technology.

BrailleMe supports input (typing) and output (reading) in electronically actuated Braille format allowing access of any digital text content on a computer/ smart phone/ tablet. Braille is a tactile script which supports numerous languages with the alphabets of each language having a corresponding set of Braille characters. This gives Braille an inherent advantage over audio based software, which support very few languages.

With BrailleMe, a user would be able to read and write in multiple languages, leading to more diverse use in all geographical areas. BrailleMe is a result of path-breaking technological work that is available at an affordable price, making it truly an unique attempt at bridging the gap between the digital age and the visually impaired.

Milestones

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>2014</td>
<td>Idea conceptualization and technology development post 1.5 years of research.</td>
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<tr>
<td>Feb 2015</td>
<td>Provisional patent filed</td>
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<tr>
<td>Jul 2015</td>
<td>Proof of Concept readied</td>
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<tr>
<td>Aug 2015</td>
<td>Indian Patent filed</td>
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<tr>
<td>Oct 2015</td>
<td>User studies initiated at NAB and XRCVC, Mumbai</td>
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</tbody>
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2WHO report, ICFReport, World Blind Union report

3The price of braille displays range from $3,500 to $15,000, depending on the number of characters displayed. Later models of braille displays offer note-taking and file storage capabilities. Some personal digital assistants (PDAs) may be connected to a computer and used as a braille display or speech synthesizer. [http://www.aftb.org/ProdBrowseCatResults.asp?CatID=43](http://www.aftb.org/ProdBrowseCatResults.asp?CatID=43). BrailleMe is at around $200.
“Innovation’s Braille Reader brings in technology which promises a significantly cheaper option incorporating both Braille in electronic form and existing audio support. Such a device is urgently needed by the visually impaired globally and I can vouch for its benefits having been exposed to the existing such devices in the market.”  
Kanchan Majumdar, Founder & Director, Society for Promotion of ICT & Assistive Tech. for Empowerment of Persons with Disabilities

Impact

Although BrailleMe is in its prototype stage, its potential impact is huge. It will not just impact the visually impaired, but everything connected to them too.

• Blind individuals: BrailleMe will be the first affordable assistive device for the blind that allows them to access digital information, make the use of computers and smart phones easier and improve both their education and employment opportunities, increasing their independence.

• Braille Institutions: Braille is essential for literacy of the blind as it is the only script available to them. BrailleMe will help institutions for the blind in their mission of Braille education at an affordable price, while also helping them facilitate transitioning into the digital age.

• NGOs, Corporate CSR: Adoption of BrailleMe by corporates will help them to improve the performance of their blind employees.

Future Focus

• Conduct prototyping and a pilot run of BrailleMe in collaboration with identified Braille institutions and blind schools - Innovation will, during this year, also test the device, get certifications, partner with vendors and fabricators, formalise strategic partnerships with NGOs, blind institutes and company CSR initiatives.

• Launch BrailleMe in the Indian market by end-2016.

• Launch globally by 2017, in both developing and developed countries.

• Launch globally by 2017, in both developing and developed countries.

• Strengthen global partnerships with special focus at organizations with grassroots level reach such as Dell foundation, Gates Foundation, UN, World Blind Union, RNIB and NFB.

• To make reading accessible to every blind individual in the world.
ACCESSIBILITY

Lighten the Darkness Together
By Divya Jyothi Charitable Trust

The lack of accessible reading material and training opportunities for the visually challenged has left them excluded from the formal education and employment system. Divya Jyothi has started a braille library and braille transcription centre which can print braille books in large numbers. The organisation is also imparting computer training through the use of accessible software such as JAWS, MAGic and DAISY. The project has impacted over 10,000 visually impaired people living in underserved areas of Karnataka, by providing them access to both information and skilling which has vastly enhanced their chances of securing employment and raise their standard of living.

Connecting Persons with Deaf-blindness/Multisensory Impairment to the World
By Sense International India

Deaf-blindness is a lifelong developmental disability, which particularly impacts the communication and mobility skills of those suffering from it. This leaves most of the persons with disability feeling isolated and excluded from daily life. The organisation trains persons with disability to use refreshable braille devices e.g. Focus 14 along with mobile software TALKS to enable deaf/blind individuals to improve their writing, speaking and reading skills. Till date, the intervention has benefited over 71,000 deaf/blind individuals across 26 states, allowing them to get connected and included in mainstream society.

Low Cost Device for the Blind and Elderly
By Society for Rehabilitation of Visually Challenged

India is home to the largest visually impaired and elderly population. Both of these communities face severe instances of social exclusion due to their perceived dependency on others to conduct daily tasks as well as their ability to access digital technology. In partnership with a social enterprise, the organisation has developed a low cost smart phone device with a specific bundle of applications that render smartphone technology more accessible to the visually impaired and elderly. Features such as vernacular screen readers, braille touch stickers and using gestures like shaking to make calls are included. Still in development, the solution will be available at affordable prices and has the potential to reach over 100 million people from both the elderly and visually impaired population together.

Amar Seva Mvibr Project
By Amar Seva Sangam

One of the most predominant reasons for the high percentage of persons with disabilities (PwD’s) in India is the lack of early intervention initiatives and screening of children when they are young. The organisation has designed simple tablet based apps that can be used by field staff to educate and train rural parents such that parents can carry out early intervention screening by themselves. Topics covered by these apps include gross and fine motor development, speech and language skills, and feeding techniques. The app also doubles up as a tool through which field staff can collect
data on the parent’s progress/ performance and findings as well as data on those diagnosed children which will be used by the organisations in house therapists for later treatment done through video conferencing. The organisation is currently operational in 5 blocks in Tirunelveli district in Tamil Nadu and caters to 849 villages impacting 700 odd children till date.

**gesTalk**  
By Aakash Lohan

An unaddressed area of disability is that hearing impaired and visually impaired individuals not only find it hard to communicate with the world but also with each other. This means that disabled individuals normally face social exclusion and loneliness. gesTalk is a smart-glove technology that converts sign language to voice and text output using a mobile phone. Still in development an innovation such as this has the potential to impact over 50 million disabled persons.

**Lechal**  
By Ducere Technologies

For the visually impaired daily tasks still remain challenging, from dressing, conducting daily household tasks and even avoiding common obstacles while walking to a nearby store/bus stop/train station. The organisation has developed Lechal. Lechal is the world’s first haptic footwear. Available as an insole or a shoe, the wearer can use simple foot gestures or voice commands to navigate with ease while the footwear itself communicates using vibrations and sensations. The innovation is also connected through bluetooth to the user’s phone so they can track both their navigation and fitness easily. Aimed at enhancing the fitness and independence of the visually challenged the product has received interest from companies across 165 countries and can have a global footprint with wide spread social impact.

**Braille Embossing Devices / Accessibility in education of visually challenged people**  
By Maiara Technologies

Education for the millions of visually impaired students within India is largely dependent on Braille books and material which can only be made using a braille embosser. However embossers remain very expensive and therefore are not accessible to children from low income settings. Maiara Technologies have therefore indigenously designed a low cost braille embosser. A software is used to input text that is then converted to braille script and printed on media. Still in a prototype stage an innovation such as this has the potential to impact over 40 million visually impaired persons globally.

**Sadhan**  
By VAANI Deaf Children's Foundation

There are over 63 million hearing impaired people in India, 80% of whom are located in rural and remote locations. This means that the services such as special education even basic sign language education, healthcare and much more are not accessible to them. What is more is that basic government services also do not reach them, because many of them are not accounted for. VAANI in partnership with the Ministry of Social Justice and Empowerment have begun the task of databasing all the hearing impaired individuals into a common centralized database. They use a door-to-door survey method with field staff inputting data onto a mobile application. With over 3 districts of Assam covered, the aim is to bring the necessary services such as education to all those hearing impaired individuals in rural India.
Footprint with wide spread social impact. The organisation has the potential to impact over 50 million visually impaired individuals globally. The lack of accessible reading material and treatment done through video conferencing. As a tool through which field staff can collect data on the parent's progress/performance as well as data on those diagnosed children which will be used by the in house therapists for later findings as well as data on those diagnosed children which will be used by the in house therapists for later treatment.

By Ducere Technologies

Lechal

has the potential to impact over 50 million visually impaired individuals in rural India. The organisation is currently operational in 5 districts of Assam and caters to 849 villages impacting 700 odd visually challenged people unable to use the conventional mobile phones. A low cost device for the visually challenged people living in underserved areas of Karnataka which communicates using vibrations via a Bluetooth connection and gives voice and text output using a mobile phone. This is a smart footwear to navigate with ease while the footwear itself communicates using vibrations.

For the visually impaired daily tasks still remain challenging, from dressing, conducting daily chores, travel to and from stop/train station. The organisation has developed a smart footwear, called Lechal which has the potential to impact over 50 million visually impaired individuals.

Aim: Lechal has the potential to impact over 50 million visually impaired individuals in rural India. The organisation is currently operational in 5 districts of Assam and caters to 849 villages impacting 700 odd visually challenged people unable to use the conventional mobile phones. A low cost device for the visually challenged people living in underserved areas of Karnataka which communicates using vibrations via a Bluetooth connection and gives voice and text output using a mobile phone. This is a smart footwear to navigate with ease while the footwear itself communicates using vibrations.

By VAANI Deaf Children's Foundation

Sadhan

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gesTalk

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By Amar Seva Sangam

Amar Seva Mvibr Project

There are over 63 million hearing impaired and 8 million visually impaired individuals in India. Of these, only 20% are actually receiving the necessary educational and other services. The remaining 80% are not able to access anything that makes them a part of society.

By Maiara Technologies

Braille Embossing Devices /

Divya Jyothi has started a braille library and braille transcription centre which can print braille books in large numbers. The braille books are then distributed to the visually impaired individuals in rural areas like Kalaburagi. The lack of accessible reading material and much more are not accessible to them.

By Sense International India

Deaf-blindness is a lifelong developmental disability, which particularly impacts the children till date.

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HEALTHCARE

Taking Health To The Last Mile

The Indian healthcare system has continued to remain an area of concern over the years. Despite many developments, a substantial part of the country remains without adequate healthcare facilities or access to qualified physicians. Existing healthcare facilities are concentrated around urban areas leaving 70% of the Indian population residing in rural settings with sub optimal healthcare. Low healthcare spends have led to underdeveloped and overcrowded hospitals and clinics in rural areas. India ranks very low on healthcare infrastructure with one bed for over a thousand people.

Shortage of qualified medical staff plagues those facilities that do exist. With 0.7 doctors and 1.5 nurses per thousand people, India ranks much lower than the global averages. This has led to dependency on unqualified practitioners, leading to misinformation and erroneous preventive and curative practices. In order to bridge this gap, the country needs around 1.5 million doctors and 2.4 million.

Technology has helped address these gaps to a large extent over the past years. Telemedicine has helped connect rural patients with urban doctors, and is a fast emerging sector in India. Increased penetration of mobiles has created efficient channels of information dissemination, data collection and sharing for various diagnostics and preventive practices. With the help of a mass campaign, India was able to eradicate polio in 2014. Using the power of information communication technology, organizations like Operation ASHA are leading the fight against Tuberculosis in India, collecting data and ensuring patients receive timely medication.

Many organizations have been a part of the tech-health landscape, tackling various aspects of the healthcare ecosystem. Shelter Associates program to provide adequate sanitation facilities and information around hygiene addresses the preventive part of the chain. GIS mapping of slum areas also helps them map vulnerable areas which acts as an important input for authorities. Innovators are also creating completely new solutions that tackle areas that have not been tackled so far. Sohum Innovation Labs’ device that helps diagnose hearing loss in new born babies to avoid loss of speech is an example of how technology can solve critical health challenges.

In its new national health policy document, the Ministry of Health and Family Welfare, recognizes the potential of technology to impact the healthcare ecosystem in India. With the opportunities that the Digital India platform presents, the government aims to use facilities like the digital locker to store patient records for sharing with experts when needed, provide easy access to information, enhance communication between various providers and use technology to bring medicines to all. The government aims to create better infrastructure and policy frameworks, leading to a holistic healthcare ecosystem and reduced out of pocket healthcare expenditure for India’s underserved population.
India’s fight against TB

eDetection For Finding TB Patients In India by Operation ASHA

Shanthava, a widow with five children, worked hard as a garbage cleaner and domestic maid to support her family. Her life changed the day she was diagnosed with Tuberculosis (TB). This diagnosis changed the behaviour of her sons towards her, to the extent that she was even asked to live separately. She was treated like an outsider, physically assaulted and often reminded that the disease was the result of some wrongdoing or bad karma. As if the disease was not bad enough, the stigma and discrimination from her own family only further contributed to Shantava’s helplessness.

When it comes to Tuberculosis, these are some unsettling realities that need to be accepted and then attacked head on. Unfortunately, India is the country with highest number of cases of TB. The incidence of TB in India is around 2.1 million cases annually (WHO), and we carry 25% of the world’s total TB burden. This isn’t a big issue - it’s a colossal one. With the last decade having witnessed the number of affected patients rising to epidemic proportions, TB clearly is India’s most pressing public health concern. TB is also considered a “disease of poverty” as it affects low-income areas excessively. Speedy identification of infected cases therefore is most crucial in being able to reduce the burden of the disease on these communities.

In 2006, Dr. Shelly Batra and Sandeep Ahuja founded Operation ASHA (OpASHA) to bring TB treatment to the doorstep of disadvantaged communities.

It was Operation ASHA that saved Shantava’s life. The family was counselled on TB being curable and myths were busted. Gradually, they came to understand and accept it. Today, Shantava lives with them happily and is undergoing treatment, support and counselling.

“Our technology not only ensures adherance, it populates a comprehensive Electronic Medical Record System and up skills semi literate health workers, where they can deliver very high quality services, at an incredibly low price.”

Sandeep Ahuja, CEO, Operation Asha

Sandeep Ahuja
CEO, Operation Asha

Shelly Batra
President and Co-founder, Operation Asha
Operation ASHA Makes A Difference

TB is India’s most urgent public health crisis. The existing public health system is ineffective due to fractured delivery of services which make it inaccessible for the under-privileged. The data available is inaccurate and treatment expensive and unaffordable for the poor.

Operation ASHA plugs these gaps with the use of government and community-based resources and by employing technology. It trains local, semi-literate youth to use technology and empowers them to manage their community’s healthcare needs. It enables people living at the bottom of the pyramid, to access the free medicines, diagnostics and services of TB physicians provided by the government.

Technology Applied in Early Detection in Ensuring Treatment Completion

eCompliance: The DOTS regimen is a WHO approved therapy for treatment of Tuberculosis. It mandates the consumption of medication under the direct supervision of a healthcare worker over a period of 6-9 months - a lengthy and tedious duration. The National TB program that dispenses DOTS maintains manual records of patients – making it unfeasible. It to review huge sets of manual data, identify patients who may have missed their doses and manage a large pool of patients, at a national level.

Operation Asha’s eCompliance, a biometric fingerprinting system, eliminates this problem by offering proof of patient-provider interaction for every dose administered. It also sends out SMS alerts for every dose that is missed. This ensures timely intervention by the health worker to avert treatment lapses. Operation Asha has been able to minimize treatment default to less than 3%.

eAlert: Patient contact details are entered at the time of collection of samples and lab results saved in this system are transmitted to a central reporting system. An SMS gateway sends messages to community health workers and the patients. This decreases the delay in enrolling patients in DOTS, thereby minimizing the spread of the disease.

eDetection: Identifying symptoms is a key issue while tackling TB in underserved communities. People affected with TB remain hidden in their homes due to fear of stigma and isolation or seek treatment from community-based quacks. The application can be used easily by the trained health workers from the community where the prevalence rate of TB is high. They administer the questionnaire (from the application) during their door-to-door visits done daily in the community. This ensures that no patient is left out, even in hard to reach geographies.

Operation ASHA hires and trains local community members who understand the local culture and customs as TB-specific health workers

Operation ASHA has gone a step further; the app has already been upgraded for detection of mental illness and depression to assess the mental health of TB patients and their families.

Milestones

<table>
<thead>
<tr>
<th>Year</th>
<th>Milestone</th>
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<tbody>
<tr>
<td>2006</td>
<td>Started first TB treatment center in Delhi, serving a population of 30,000</td>
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<tr>
<td>2008</td>
<td>Expanded to Punjab and UP; Delhi coverage up to 6 lakhs</td>
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<tr>
<td>2009</td>
<td>Prototyped eCompliance - a biometric system for medication adherence in collaboration with Microsoft Research</td>
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<tr>
<td>2009</td>
<td>Expansion to Cambodia; Became a Board Member of the Stop TB Partnership, an affiliate of WHO</td>
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<tr>
<td>2012</td>
<td>Won Wall Street Journal Technology Award</td>
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<tr>
<td>2013</td>
<td>Model replicated in the Uganda, Dominican Republic</td>
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<tr>
<td>2014</td>
<td>Addition of heart care and diabetes to service offering, beyond TB; Launched eDetection system for active case finding and contact tracing</td>
</tr>
<tr>
<td>2015</td>
<td>Addition of haemophilia to service offering, eCompliance and eAlert systems</td>
</tr>
<tr>
<td>2016</td>
<td>Coverage of population expanded to 1.5 crore people</td>
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In-house Development

eDetection is the screening and identification of persons who may have come into contact with an infected TB patient. It is an easy to use android application that can be downloaded and accessed offline, to be synced later with the central server, making it usable even where internet connectivity is not as readily available.

The software works in two modes – Contact Tracing and Active Case Finding.

The Contact Tracing application currently works on the Android platform.

The subsequent version for iOS is under consideration. The application was developed using Eclipse IDE (Integrated Development Environment) and SQL Lite for Client Database. The technology was developed in house at Operation ASHA.

The application uses GPS tracking for increasing detections in high prevalence areas. When connected, the device coordinates are tracked and integrated with Google maps to form active hotspots, which are then targeted by the health workers. The data can be synchronized with the central server to create reports to supervise the entire process of Contact Tracing. The data can be further be filtered based on city or time period.

Impact

- Detection application is successful in increasing detection rate of TB by 50-400% within 6-18 months of starting work in any area
- Identified TB patients for a population of 6.34 lakhs living in rural or tribal areas, specifically in high burden states with a prevalence rate ranging from 150-260 per lakh population
- 40,000 + patients have directly benefitted by the solution
- Provided dignified employment to community health workers who have been trained and equipped with this technology
- Saves the economy $12,235 (Rs 7.34 Lakh) in indirect loss (Annual TB Report 2013, Government of India) with treatment of each patient.

Future Focus

- eDetection application currently used in many other countries like Tanzania and Afghanistan
- The App can be customized for disease surveillance of any disease, used during epidemic outbreaks in any geography for any disease
- The App is currently being used to track Haemophilia in a population of 8.4 million across two states of Haryana and Uttar Pradesh.
Dignity through Hygiene

One Home One Toilet by Shelter Associates

Ratnamala Bansode, 50 years old, dreaded the prospect of venturing out at night when in need to use the community toilet. She also felt very unsafe out in the open and used to eat less in the evening to avoid the need for use of a toilet. Using the community toilet wasn’t encouraging either as the unhygienic state of the toilets often forced people like her to resort to open defecation. It was even worse when she was menstruating.

The rising population of India has led to an increasingly worrying lack of availability of basic amenities. Access to clean and safe toilets for the millions of urban slum dwellers is the need of the hour. Apart from directly affecting health, nutrition and pollution levels in these slums, it also hampers the quality of life – especially of the elderly, the ailing, women and children. Bureaucracy and a plethora of other issues that plague the running of the government ensure various discrepancies with the solutions offered, which delays their reach to the needy.

The issue of sanitation doesn’t need solutions in theory. It needs action. Shelter Associates (SA) seeks to safeguard the basic right to dignity by providing individual household toilets in urban slums with their ‘One Home One Toilet’ (OHOT) model. Their program tackles the issue of open defecation and the serious lack of safe and clean toilets for the urban underprivileged through an end-to-end, holistic urban sanitation solution that is driven by statistics and data. It also integrates technology and behaviour change.

Experience of building community toilets let Shelter Associates to realise that not only is the capital expenditure involved in building community toilets higher than an individual toilet, it also leads to maintenance costs for ULBs. By providing individual toilets, Shelter Associates helps cultivate a sense of ownership, leading to hassle free maintenance. By providing individual toilets rather than community toilets, Shelter Associates helps cultivate a sense of ownership.

For Ratnamala, this was a life saver. She welcomed the opportunity of an individual toilet inside her house. As the family contributes a portion towards the construction of the toilet, there is strong buy-in for this. Ratnamala had to sell her gold necklace, but in her eyes, “a toilet is more important than gold and jewellery”.

Pratima Joshi
Executive Director, Shelter Associates
One Home One Toilet

The OHOT begins with a citywide GIS mapping of infrastructure in slums including drainage lines. Slum and individual household level surveys follow to collect data and target slums with the maximum level of vulnerability.

The collected data is a rich resource for the urban development plans of other NGOs and government. SA uses this data to work with the local municipal corporation to repair and multiply sewerage networks and expedite the supply of construction material to households.

For targeted slums, SA organises community mobilisation such as meetings, workshops and group discussions. Some of the activities are specially targeted at women and adolescent girls. SA understands that families need to be educated on the need for healthy sanitation practices. A demand for individual toilets needs to be generated. SA also supervises the construction of toilets in singular households.

Foresight, Innovation, Technology, Determination

Shelter Associates was the first NGO in India to tailor the GIS software for mapping poverty in the late 1990s. SA bought an academic version of the Inter–graph software and subsequently received the software as a grant from Intergraph of better, upgraded versions for the cause.

With the advent of Google Earth, SA used their maps as the base map for overlaying data that they collected. Moreover, Google has provided SA with a free authorisation to use Google Earth Pro for the past several years. SA has started using Tablets for capturing data and volunteers have designed its web-based platforms.

Currently two Urban Local Bodies – Pune and Kolhapur - have linked their websites to SA’s website to make their spatial data available to all.

A few key steps make up this entire process:

Step 1: Data Collection - charting the slum boundaries, infrastructure like community toilets, sewerage networks, roads, water stand posts, identifying open defecation fields, and so on.

Step 2: Data Assimilation: This data is then integrated onto the GIS Platform which is to create detailed reports for each slum. This enables stakeholders to understand the present infrastructure and sanitation situation, and then design solutions accordingly.

Step 3: GIS Mapping: SA also undertakes mapping of every structure and rapid household surveys that includes a short questionnaire which is amalgamated on the GIS platform. This allows for spatial querying across dwellings in a given settlement and accurately identifying households that lack sanitation.

SA’s model helps in identifying households that can be equipped with individual toilets and then enables and monitors the construction of the same. GIS mapping helps to identify infrastructural discrepancies which SA can rectify by enlisting the assistance of the urban local bodies and the household that can be equipped with the toilets.

Milestones

2000
- GIS based poverty mapping
- Mapped 99 slums Miraj and 300 slums in Pune (over 100,000 families)

Early 2000s
- 13 Community Toilets (155 seats) constructed in 11 slums in Pune, serving approx. 1,600 families

2002
- Built 2 community toilets in SMKMC followed by another one in 2007, two connected to biogas units

2004
- Mapped and surveyed all slums in Khubadab (8,000 families); sanitation efforts in Sangli scaled up to 3,600 families

2010
- Appraisal of 65 slums in Nashik; built over 500 individual toilets in Pune slums on a cost sharing model and provided sanitation to 1,700 families

2015
- Partnered with PCM (Pune Municipal Corporation) in a pilot project to provide 400 toilets across Pune. Inspired by our model, PMC has decided to provide 30,000 toilets under Swachh Bharat Mission by 2017.

By 2016
- Facilitated the construction of 5000 individual toilets affecting nearly 50,000 people across 4 cities in Maharashtra
Impact

- Better health leads to lesser expenditure on medical bills, which helps the underprivileged save their income.

- Safeguards the dignity and safety of women, adolescent girls and the elderly – none of whom need to defecate in the open anymore.

- Awareness on cleanliness and sanitation has led to behaviour and attitude change and communities are becoming cleaner and more hygienic.

- Access to real-time information and GIS mapping helps corporation workers make cognizant assessments that are data driven and transparent. This data helps form the foundation of other initiatives in slum development that are designed and planned by urban local bodies as well as other NGOs.

- Poverty mapping of 500 slums across 4 cities of Maharashtra (Pune, Pimpri–Chinchwad, Sangli–Miraj and Kolhapur).

- Individual toilets have been provided to over 4,500 families - impacting 30,000 individuals across the four cities.

Future Focus

- Scale up work in five cities of Maharashtra

- Inclusion of Government, NGOs and private sector as implementation partners

- Build a technology solution for monitoring the status of sanitation across India

- Expansion to Kolhapur and to reach out to 550 families with individual sanitation in the first phase

- Scale up plans include impacting 1 lakh families through direct and indirect implementation over the next three years

"In several large cities, over 40% of the population lives in slums, in a degraded environment, that makes up less than 5% of the city’s area. The city needs their services as much as they need the city’s. We need to push for more equitable distribution of resources. You cannot have homes that lack the most basic services." Pratima Joshi, Executive Director, Shelter

“I have known Shelter Associates for over a year as Pune Municipal Corporation has partnered with them to implement the individual sanitation program in slums of Pune. The model ‘One Home One Toilet’ is robust and can be easily scaled to other urban areas within the state or even the country. With such a partnership model in place, we are confident of achieving the targets under Swachh Bharat Mission.” Kunal Kumar, Municipal Commissioner of Pune
In 2010, Nitin Sisodia’s experience at a child development clinic at AIIMS, New Delhi changed his life. A worried parent had walked in with her 5-year-old child who was unable to speak. After a thorough examination, the doctors explained that the child was unable to speak because he was unable to hear. The parents were further troubled when they learnt that it was already too late to repair this. The child would be deaf for the rest of his life. This entire episode affected Nitin deeply. Further research revealed some really staggering statistics.

800,000 babies are born with hearing impairment every year, all over the world of which around 100,000 are in India and 90% in developing nations. In a majority of cases, the condition remains unidentified till a stage where it is too late for repair and there is loss of speech, impaired communication skills and possible mental illness. Early detection can actually make a huge impact on the child’s life, but only if it happens within the first six months of birth. Speech and hearing disability can be tackled if timely detection becomes a norm. Walking away was not an option, once all of this became clear to Nitin. All he knew was that he had to take action and make an impact. He realized that creating an opportunity for intervention was crucial in order to tackle this head on. This led to the inception of Sohum Innovation Labs. The company is crusading to make early detection of hearing impairment a norm by developing a novel device and system to screen newborns, in resource poor settings, for hearing loss. This can lead to timely treatment and rehabilitation, as well as savings in healthcare expenses to the system.

From developing the device to the pilot phase, it has been a fulfilling journey for Nitin. The focus is on deploying the device in as many hospitals as possible. With a unique cross subsidy model, the plan is to make this affordable for rural and urban poor parents to ensure their babies are tested. The team also recognizes the need to build awareness on the benefits of screening at birth.

Walking away was not an option, once all of this became clear to Nitin. All he knew was that he had to take action and make an impact. He realized that creating an opportunity for intervention was crucial in order to tackle this head
Making a premium global technology local-friendly

Sohum Innovation Lab’s device is a non-invasive, safe, medical device and a system solution to enable mass screening of newborns for hearing loss. It uses Brainstem Auditory Evoked Response (BAER or ABR) technology, which is the gold standard in auditory testing and is recommended as the test of choice by the American Association of Pediatrics (US) and the National Health Services (NHSUK). It involves measuring brain signals with the help of three electrodes placed on the scalp in response to a series of stimuli sounds in the ear for few minutes. These brain signals are then analyzed to determine whether the newborn can hear adequately.

The device comprises of three parts. A base precision hardware unit that captures brain signals, an algorithm software that analyzes the signals (and noise) and can run on various platforms, and a unique, easy-to-use electrode system that fits different head sizes. In the last clinical validation study, the algorithm was tested on 65 data sets from newborns and yielded sensitivity and specificity of 98.25% and 90% respectively.

While this technology’s prohibitive costs put it beyond the reach of the underserved populations, Sohumindigenously designed and developed their device to meet the needs of the system. The device now provides the following innovative features:

1. Unique algorithm: provides high sensitivity and specificity.
2. Selective artifact rejection: eliminates use of sedatives; enables use in noisy environments and has performed well with environmental noise of 60db (devices based on OAE fail at 6db).
3. Optimized design: reduces test duration by reducing time for preparation and analysis, which makes it ideal for mass screening
4. Reusable, easy to clean electrode system: reduces the cost of the procedure baby tested positive through the device gets timely intervention. Reusable, easy to clean electrode system: reduces the cost of the procedure
5. Easy to use: even low skilled workers can easily learn to use the device
6. Innovative business model: a unique service based revenue sharing model

If the infant screens positive, she is referred to the audiologist or the ENT specialist for a diagnosis and further intervention. The device is enabled to send data to a centralized server for advanced assessment and maintaining a database for referral services. This tracks impact and ensures that babies that are screened positive get appropriate aftercare.

The centralized data processing increases the sensitivity and specificity of the test and enables improved health delivery even in remote resource poor settings. Sohum brain signal acquisition technology is a critical and high value technology and can be used for accessing other critical brain function (EEG analysis, sleep analysis) and conditioning of other Biosignals (ECG, EMG, Fetal monitoring).

“We wanted a device like Sohum to be there in our facility so that we can start conducting hearing screening in our clinic and in the field with controlled false positive results. It will be a boon to many babies born with hearing loss and remain undetected very late in life and eventually lose their speech.” Dr. Krishna, Audiologist, Manipal.

**Milestones**

- **Sep 2015**
  - Advanced product tested on babies in 3 centres

- **Dec 2015**
  - Clinical trial approval from AIIMS New Delhi, Manipal University, Vaani Villas Maternity and Child care hospital

- **Early 2016**
  - Special school for students with intellectual disabilities established

- **March 2016**
  - Launched in 10 hospitals across India
Future Focus

• Launch product across India, other Asian regions and South America by 2017.

• Implementation of the product in tier 2 and tier 3 cities and rural India in 2720 healthcare centres, thus screening 9,50,000 children and approximately 4550 hearing impaired children would have received early care.

• Combine Sohum hearing-screening program with other government run maternal and childcare initiatives and vaccination camps to target non-institutional births.

“Early detection and early intervention can save thousands of babies from leaving a life deprived of normal communication, education, livelihood and dignity. We are committed to bring the Sohum ABR hearing screening & aftercare to every baby in this world no matter where he or she is born.”

Nitin Sisodia, CEO, Lead innovator of Sohum hearing screening device

“This will bring more quality of care we provide to newborns who are admitted to NICU, suffering from jaundice, sepsis, administered with ototoxic drugs and are prone to auditory pathway damage.”

Dr. Wasim Khan, Pediatrician, Bhopal
HEALTHCARE

Cardiotrack 12 Lead
Handheld ECG for Remote Diagnosis
By Uber Diagnostics Pvt Ltd

India is home to over 60 million heart patients, with only 10,000 cardiologists to attend to them. This has meant that screening, detection and treatment of such heart diseases have remained largely inaccessible especially to those from rural and remote settings. Moreover, many cardiac diseases can be treated if detected earlier. Uber Diagnostics has therefore developed Cardio-Track a portable diagnostic device that can capture, measure, diagnose vital tests such as ECGs and parameters. Relaying them in real time to the appropriate doctors remotely which then results in timely intervention and treatment. Till date over 2000 patients have been treated in Karnataka, Uttar Pradesh, Tamil Nadu and Maharashtra.

Netradaan Eye Donation App
By Sightica Solutions Pvt Ltd

With millions of individuals suffering from visual impairments or diseases that may cause it, eye donation has become the need of the hour in India. India imports over 45,000 corneas every year. The organisation has therefore partnered with Eye Bank Association to develop an android based mobile application where users can locate the nearest eye bank as well as have both willing donors and patients to connect. The app is fully accessible to all visually impaired individuals and is available in both English and Hindi. Still in its early stages the app is the first of its kind in the country and has been downloaded by 100 users in the last few months.

Connecting rural India through wireless health incident monitoring system
By iKure Techsoft Pvt. Ltd.

70% of the Indian population, which translates to 840 million people, lives in villages. There is significant urban-rural disparity in healthcare delivery in the country. Less than 30% of the country’s combined medical force are located in rural and semi-rural areas. This has left a majority of our population struggling to secure any treatment and quality healthcare.

To combat this problem the organisation, as part of their rural healthcare program, has developed a medical collaboration platform - the Wireless Health Incident Monitoring System (WHIMS). The software enables doctors and health-workers in rural and remote areas to capture the health information of the patients using a web application. It is supported with basic medical equipment like phymomanometer, ECG for seamless data transfer and can be used through a mobile or tablet. It also enables doctors to then refer patients to specialists in urban areas for treatment if needed. Till date, the organisation has treated over one lakh patients.

mMitra
By Armaan

The State of the World’s Mothers 2015 report ranks India amongst the top ten countries with largest urban child survival gap. In the age group 0-5 years, the urban poor are 3.2 times more likely to die as compared to urban rich. Also the mortality of women during child birth remains relatively high within the urban poor population due to a lack of proper
medical treatment and facilities made available to them. Armaan has created mMitra a mobile voice call service which provides comprehensive information on preventive care and simple interventions to reduce maternal and infant mortality and morbidity in urban India. The calls are tailored to women's gestational stage, linguistic preference and time availability. A call centre manages the service at the back end. mMitra is a unique and totally new concept impacting over 1.5 lakh beneficiaries across Maharashtra, Karnataka and Haryana so far.

**Leveraging mobile technology to prevent diabetes in India**
By Arogya World India Trust

Over 66 million people suffer from diabetes in India with over 1 million succumbing to it every year. Furthermore the economic impact is devastating. The International Diabetes Federation estimates that 25% of a poor Indian family’s income is spent on care for one person with diabetes. Arogya world has developed 2 mobile solutions aimed at preventative care for diabetic patients especially from rural settings. The first is mDiabetes, developed in partnership with Nokia, where users with low cost Nokia phones can receive text messages with diabetes prevention information in their local languages. The second is myArogya a mobile application developed in partnership with Emory University and Click Medix, which provides information on diabetes and healthcare and is targeted more at the urban population. The app also transmits messages in English twice a week and allows users to track their food habits, calorie intake and much more. Through its two innovations the organisation has reached over 1.5 Lac individuals till date, with the aim to help over 5 million people living with diabetes lead healthier lives over the next 5 years.

**Telemedicine based Screening for Diabetic Retinopathy in Urban Mumbai Slums**
By Aditya Jyot Foundation for Twinkling Little Eyes

Diabetic retinopathy (DR) is the most common diabetic eye disease and a leading cause of blindness in India. Screening and treatment of DR is not easily accessible and affordable to Indian slum dwellers. Currently, detecting DR is a time consuming and manual process that requires a trained clinician to examine and evaluate digital colour fundus photographs of the retina. To make the process of DR screening both cheaper and faster the organisation has deployed DCAM, an iPhone based attachment, this camera allows us to capture anterior and posterior fundus images that can be uploaded in real time to the central server that links patient and doctor and allows for quick diagnoses and treatment. The organisation who is currently running this project in the urban slums of Mumbai has impacted over 500 people till date.

**Mobile Applications for Organ Donation (MAPOD)**
By MOHAN Foundation

There is a critical requirement for organ donation in India, with a growing gap between supply and demand. Organ failure rate in India is high with requirement of kidneys alone standing at 175 per million population and transplantation rate of only 5.7 per million. The shortfall in organ donation can be attributed to both a taboo and lack of awareness on the topic. Currently, there are ‘Organ Waitlist Web Registries’, in 3 states in India - Tamil Nadu, Kerala and Rajasthan. The registries help both doctors, patients and donors to track and prioritize organ donation saving lives quickly. Mohan Foundation has therefore taken the next step, converting these registries into a mobile application for organ distribution and transplantation. An innovation such as this can aid healthcare professionals in ensuring number and quality of organs retrieved. And patients by providing information on NGO’s, hospitals and institutions which help in organ donation. Still in development, the organisation hopes to impact over 2 million people every year through their application.
With the largest generation of young people that the world has ever seen, and because of the grave cost that gender inequality extracts from their potential, the test whether or not the next 15 years deliver sustainable development lies with the adolescent girl. She is the face of the future. Realizing her potential through access to health and education, keeping her safe and in school, and giving her critical information and a say in her own life will transform her future. Transforming her future means our futures are transformed.

2015 was a historic year; it was the end of the millennium development goals (MDG’s) and the adoption of the sustainable development goals (SDG’s).

A global race towards achieving, what has been described as “the world we want”. There are criticisms of the efficacy of these types of goals and the processes by which they are derived. But they provide a starting point and framework in which people representing varied mandates come together. In fact, the SDGs have already begun to shape the development discourse, models, and funding mechanisms.

The 17 SDG goals are very ambitious; ranging from aiming to end poverty, extreme hunger, promote sustainable use of ecosystems improve social and economic development, and end gender inequality.

Investing in the 500 million adolescent girls in the developing world is not only the “right” thing to do, it is also the best way for governments to improve health and social economic development. Look at the potential of what we might achieve and the suffering we can alleviate:

• When a girl in the developing world receives 7 years of education, she marries 4 years later and has 2.2 fewer children. (Girls Count 2009).

• Babies born to adolescent mothers are 50% more likely to be stillborn or die within the first few weeks of life than those born to older mothers (WHO 2014).

• One extra year of primary school education boosts girls’ future wages by 10%–20%, and an extra year of secondary school adds 15%–25% (Psacharopoulos and Patrinos 2002). Education is one of the most powerful instruments for reducing poverty and inequality and lays a foundation for sustained economic growth. Yet, many girls in developing countries lack access to education. Girls are lagging behind because their connection to information and communication technology (ICT) is limited, missing out on one of the key drivers of educational and economic progress in today’s modern world.

ICT can provide platforms to exchange innovative ideas; to collect data and evidence for sound policy development in which everyone counts; it can provide knowledge transfer tools, access to markets for people who were earlier cut off from this critical information or missed earlier opportunities, among many other innovations. We can already see traces of this in the efforts of Fields of View and Red Dot Foundation who are leveraging the power of ICT to combat sexual harassment and create awareness and encourage reporting on the subject, using public kiosks for reporting and geo-tagging of high risk locations.

One practical approach for anyone interested in addressing development priorities within the ICT space – practitioner, policy maker, entrepreneur or combination – is to use the SDGs as a stepping stone to find that unique meeting point where the wider social concerns of development intersects with our desire to make a difference, personally and jointly with business, NGO’s and public agency.

Girls are not only the future, they are also the present: investing in her development so that she can reach her full potential is the most powerful weapon to build a better world; the world we want in which nobody is left behind.

Frederika Meijer,
Former Representative to India
United Nations Population Fund
The incidents of sexual harassment and abuse has been on the rise in India. UN Women states that 1 in 3 women in India face some form of sexual assault at least once in their lifetime. What is more worrying is that these women and girls do not report these instances due to fear of social exclusion, tedious formal procedures and a culture of victim blaming.

In order to create awareness on street harassment and abuse and get women and other disadvantaged communities to break their silence by reporting personal experiences, Red Dot Foundation has created Safecity – a platform that documents personal experiences of sexual harassment and abuse in public spaces. The platform consists of a crowd map where women can anonymously report an incident, specifying the location and time. These geo tagged stories then show up on a map as hotspots. The innovation works on the open source software Ushahidi for documentation. Citizens can sign up for alerts, check information on street level and read other reports. The organization also has a missed call service for people who do not have internet access and plans to develop a mobile app.

In a unique online-offline model, the organization crowd sources the data and then uses the trends to find effective solutions with partners – NGOs and community based groups. The idea is to make this data useful for individuals, local communities and local administration. The larger goal is to make information such as this available to government and law enforcement personnel so that they may take action and find solutions towards creating safer cities. Currently the platform provides monthly trend reports to the police departments in Mumbai, Delhi, Pune, Goa and Bangalore. The platform is also operational in Nepal and specific locations in Africa. It has impacted over 250,000 people so far.

As a preemptive, rather than an SOS tool, the platform and the subsequent mobile app has the potential to provide notifications about the safety levels of locations, along with insights and tips for people to make the most informed decision regarding their safety.
There are over 355 million menstruating women across India, but only 12% of them have access to any form of sanitary products. Due to lack of proper hygiene and sanitation facilities and unaffordability of sanitary products many women/girls miss over 50 days of work or school – causing them to be unable to earn for their families or fall behind in studies. 1 in 5 school going girls drop out after puberty. Furthermore menstruation is widely seen as unclean and is surrounded by much social stigma. This makes it hard for women to discuss it let alone understand and practice menstrual hygiene.

The organization trains local micro-entrepreneurs living in slums to use their cloud based mobile technology to educate underserved women on menstrual hygiene. The mobile app acts as a tool of data collection for these frontline workers, helping them in their follow ups with the same women every month. The mobile application is designed to deliver awareness through a series of different modules which contain multi-media videos, pictures and videos on issues regarding menstruation. The micro-entrepreneurs not only act as on ground local field workers conducting workshops but also sell low cost sanitary napkins to the slum women. The solution also allows the entrepreneurs to collect on ground real time data on purchase of sanitary products and how many beneficiaries they have reached every month. Using the tool, data is collected before conducting any awareness session in a community, after three months and one year to measure the impact made accurately. The app also allows the organization to monitor the performance of field workers, irrespective of geographical location in real time – adding to the efficiency of operations.

The organization has reached more than 6000 women since July 2014, 69 percent of whom had never used a sanitary napkins earlier. Currently the organization is working on implementing the solution in Bangalore and plans to start operations in Hyderabad soon. The solution is expected to reach over 28,000 women by the end of 2016.
The issue of sexual harassment of women in public spaces has come to the forefront in India. However, there is a large gap in data leading to sub-optimal understanding of the issue - in understanding where and why these incidents are on the rise and how this can be mitigated. What we do know is that there is a serious issue of under-reporting by women due to the fear of social stigma, scepticism that nothing will be done and a general lack of trust.

Solutions in the form of SOS devices and panic buttons have had limited success, owing to several reasons. Creating effective processes and interventions for safety requires the right assumptions and hence the right information in the form of data. Fields of View, through Conversation, aims to create a solution which can collect and analyse this data – leading to better informed citizens and policy making and law enforcement authorities.

For this reason the organization has created a physical kiosk in the style of an ATM, which can be installed in public spaces to be used by women to report any form of violence or abuse. This kiosk consists of a portrait oriented screen with a set of speakers and buttons on each side to input information. The user interface has been designed to support multiple languages, with audio-visual interface including pictograms and voice-overs to be accessible to non-English speakers, women who are semi-literate and do not have technology literacy. The robust, low cost design of the kiosk allows it to be placed in public areas such as bus stops. The data collected through this device will be sent to different stakeholders – civil society bodies, law enforcement authorities and government departments for effective interventions based on clear information. The data collected can be visualized and displayed on a public screen to build more awareness.

The prototype for the solution has been developed in collaboration with IIT- Bangalore and the organization is working within Bangalore in the initial phase. The low cost of the kiosk is expected to aid large scale deployment and hence has the potential to impact millions of women across the country.
Women are many a time overlooked as potential bread winners and earners for households and are therefore left out of the formal economy. This has meant many of their skills have not been leveraged upon. AndeKaFundaa is a hyper-local micro service platform for housewives/women on career breaks to provide their services be it cooking recipes, voice training, yoga and much more while getting paid for it. This platform is available to women in urban and rural settings, providing them a source of self-employment and income. Till date the platform has 2000 registered service providers out of which 60% are women entrepreneurs a majority of whom are located in tier 2 cities.

Despite doing the majority of the agricultural work, women in Uttarakhand are not recognised, given any credit or any of the same facilities as those available to male farmers. What's more is that women farmers do not have access to market information and remain unorganised which hinders their ability to have any real power to negotiate. As part of their program to empower female farmers, SEWA Bharat has trained over 754 women to use Reuters Market Light (RML) mobile technology. RML provides information the market price and weather updates that have a huge influence on farmer’s produce and incomes on a daily basis. The entire program has directly impacted over 754 women by empowering them to both negotiate, lobby and take critical decisions on harvesting and sale of produce.
At Vodafone, we are fortunate to be part of an industry whose core is to provide connectivity to individuals, society and nations. Tech for good for us is connectivity which fosters empowerment and inclusion. The most exciting part of our business is the transformation that comes in the lives of people when they get connected.

The Indian economy needs to grow over 8% year on year on a sustained basis over the next couple of decades to achieve the vision of Inclusive growth. The government has made inclusive growth central to its agenda and embarked on several initiatives to deliver development to the very last mile through a ‘Digital India’ and a ‘mobile first’ approach. The focus on Jandhan, Adhaar and Mobile (JAM) rightly places the mobile both as a tool as well as the means to achieve the desired goal of economic prosperity, wellbeing and social empowerment. Empowering citizens with technologies to create more transparency in every sphere is key to inclusive growth. At Vodafone, we believe mobile technology can address some of India’s critical social and developmental challenges in both rural and urban communities. Today, with over a billion mobile phone subscriptions in the country, the ubiquitous reach of the mobile makes it the most relevant channel for last mile outreach. The little device in their pocket or purse becomes the window to a world of information, education, livelihood, employment and even shopping and commerce.

Mobile technology today is enabling innovations across industries creating new business and consumer connect models. Mobile applications, IVR, USSD, mobile banking, cloud computing and Machine-to-Machine technologies are connecting “everything to everybody”, and will continue the transformational impact on communities with much greater intensity.

The Vodafone Foundation, guided by its philosophy of ‘Connected for Good’, works with partners from the developmental sector to address several challenges pertaining to health, education, access among others amidst the community, while driving innovation, disseminating knowledge, and creating shared value to improve lives in India. This book lists some of the best ICT led social innovations which integrate social objectives with technology to change the future of social development in India, significantly accelerating India’s journey on the digital highway. I wish all of them a more transformative power ahead.

P. Bajali
Director-Regulatory, External Affairs and CSR of Vodafone India.
Less than 25% of India's eligible population has access to credit from formal financial institutions. A majority of Indians are left out of the formal financial system and lack basic services. This means that those that do have entrepreneurial ideas lack the knowhow, resources and ability to find funds to scale their idea and enterprise. Rang De's mission is to provide low interest, collateral free credit to those entrepreneurs who continue to depend on non-banking credit sources and pay very high interest rates for their micro loans. By providing timely assistance in the form of credit support to enterprising individuals, Rang De empowers them to chart their way out of poverty.

Rang De's online peer to peer lending platform connects low income borrowers who need loans with individuals who desire to help through non-traditional charitable giving. Rang De connects borrowers and investors in a transparent, accountable manner. By creating an easy to use, trustworthy platform, Rang De provides social investors an avenue to channel their philanthropic capital directly to end beneficiaries. On the other hand, the online platform allows borrowers to seek loans at very low interest rates, allowing them to run very low risks and still be empowered.

The portal is currently operational in 15 states across India. Rang De has disbursed around 41,208 loans and supported over 400 different occupations. At least 50 percent of Rang De's borrowers are classified as first time borrowers – those who have never received a loan from a financial institution before, 94 percent are women entrepreneurs. The organization aims to disburse loans worth INR 100 crores with the help of more than 50,000 social investors. The organization's new standards of social audit and transparency are creating a vibrant community of social investors who are deeply engaged with Rang De's vision and are increasingly taking ownership of the idea.
As statistics currently stand, it is estimated that 1 miner dies every 3 days in India. This is mainly because there is a complete lack of safety procedures and resources available to them. Many of the accidents can be avoided and many lives saved if there is a timely response to emergency situations.

Third Eye Solutions aims to solve the issue of underground wireless communication and safety that requires intrinsic safe devices only. iWristPhone, a customized version of a stand-alone smartwatch, was developed for underground miners which they can use in times of emergency. The device has a dual core CPU, 3mp Camera and gravity sensor for man fall down alert. It can also measure heart rate and other basic physiological parameters and works using 2G/3G SIM or Wi-Fi/Bluetooth. The two-way voice and video feature works without internet connection and the GPS features allows control room staff to locate miners in time of emergency. The entire solution will allow for quick response to emergency situations and saves many lives within the mining industry.

The organization is currently serving mines in Karnataka, West Bengal and Orissa with an estimated potential impact of reaching out to over 100,000 miners.
In developing regions due to widespread connectivity issues, illiteracy, and social norms, more than 70 percent of the people do not have access to credible and timely information, especially amongst the rural and low income communities. This significantly limits their ability to make informed decisions. Second is the challenge of taking to scale any socially beneficial solution due to the lack of resources, technology and expertise. In comparison the developed world has a high rate of knowledge transfer and this leads to quicker awareness and informed decision making which can be widely attributed to the development of social media.

OnionDev recognizes the fact that as the internet reshapes the global economy, it is imperative that the most vulnerable populations of the world are not left behind. Mobile Vaani is a voice based social media platform, for rural and low income communities. Individuals can call a toll free number to leave messages on socially relevant topics such as agriculture, weather, crop prices etc. and listen to other customized messages left by other community members. The use of simple voice calling makes the platform accessible to less literate persons without smartphones. This raises their awareness and opens up channels for the community as never seen before. For their business clients, the “Mobile enablement – Managed service offering”, Mobile Vaani offers a unique low-cost-per-reach platform as compared to any traditional medium targeting their potential consumers.

The main impact of the innovation is the creation of a well-informed community. The platform solves the challenge of providing a medium to share knowledge, strengthen accountability and democratic processes. The platform can be used by NGOs and government to aggregate data and information on citizen insights.

Currently the platform is operational in Jharkhand, Orrisa and Madhya Pradesh and has the potential to reach over 2 million. In the month of October 2015 alone, the service was used by around 1.5 million people, with an average call number per day ranging from 10 to 30 thousand.
Road accidents are responsible for over 300 deaths every day in India, many of which can be attributed to potholes. Potholes remain a critical nuisance for all Indian’s whilst the reporting procedure for one remains lengthy and tedious. For this reason the NGO has developed a mobile application, 'Report a Pothole ' which citizens can use to report potholes to government bodies with minimal effort. The app also allows them to track the status of their complaint. The application is both GPS based and has voice-to-text features that allows drivers to report pot holes on the go in a safe manner. The organisation is also in the process of developing a GIS based web application for the same. Still in the process of being developed the application has the potential to be scaled nationwide.

Waste Management still remains a critical challenge in India, with over 10,000 tonnes of garbage being generated in the NCR region alone on a daily basis. Much of this garbage is dumped in public spaces and makes living conditions for residents very challenging. As part of the larger 'Swatch Bharat' initiative, Charities Aid Foundation has launched the 'click2clean' initiative. The initiative encourages citizens to take pictures of littered public spaces and upload them on to their social media page. 100 such pictures of 100 different public spaces will be chosen and partner NGO’s along with local municipal authorities will work to clean the space. Post the clean-up the NGO will continue to handhold the community for the upkeep of the space. Simultaneously the organisation will hold awareness drives to encourages local communities to get involved. The program is currently being implemented in the NCR region and is envisioned to be the first step towards a litter free nation.
NSIF Participants receiving their awards from the Chief Minister of Maharashtra, Shri Devendra Fadnavis, at the NASSCOM India Leadership Forum; Group photo of NSIF Winners with Puneet Virani, Mohit Thukral, Dr. Ganesh Natarajan, Shrikant Sinha and Rumi Mallick
An imperative of society is economic growth that is equitable and inclusive - growth that percolates to all strata of the community with no bias. This socio-economic growth is fuelled by creative and innovative solutions that bring to the underserved communities the same services as the more privileged sections. At NASSCOM Foundation, it has been our longstanding belief that technology and social innovations are inextricably linked and form the very basis for sustained change.

New, breakthrough thinking is the need of the hour; which will create solutions that can be scalable, reach larger and far-flung audiences and create bigger impact. With focussed interventions such as Digital India and Make in India, these techno-social innovations are taking centre stage, demonstrating the efficacy of technology-led development initiatives to boost citizen empowerment across the economic spectrum.

All over the world and in India too, more and more entrepreneurs are investing in technology to help them achieve social objectives. Increasing collaboration between the NGO, Government and private sectors, and the emergence of hybrid models stands witness to the fact that a deep understanding of the social issue being addressed cannot be replaced by the most sophisticated technology. Technology really plays the role of an enabler, and is not the ultimate goal itself. A deep understanding of the cause and the various stakeholders involved is one of the key ingredients for a successful solution or intervention.

Our experience in supporting social innovations has provided us with insights into what makes some models scalable and profitable. We believe these 6 factors are critical to the success of social innovation and entrepreneurship:

1. Proof and clarity of concept
2. Leadership and vision of the leadership team
3. Scalability of the concept – with or without the use of technology
4. Ability to harness technology
5. Data Analytics to drive decision making
6. Public/Private partnerships

In the last decade, we have seen interest as well as investments in areas such as education, primary healthcare services, accessibility and financial inclusion. Under the aegis of technology, projects in these areas have scaled up in growth and profitability benefitting both social innovators as well as society at large. Many of these projects have scaled and found relevance cross borders and are now becoming the norm for long term, large scale impact.

Over the next few years, we see a paradigm shift; technology will add a significant dimension in new areas such as the environment and its conservation, sustainable agriculture, mobility management, climate change and greenhouse emissions and food security. Secure societies will be the areas of interest and investments over the next decade.

Through NSIF we will continue to support not just the social innovations and the people behind them, but also contribute to the overall ecosystem of Tech for Good. Our endeavour is to create better understanding of new technologies, as well as of emerging social issues. Our belief is that a combined success on both fronts will lead to systemic and sustained change.
NASSCOM Social Innovation Forum, a NASSCOM Foundation initiative aims to catalyse thoughts and actions for inclusive development in India, by supporting social innovations and change makers who are using Information and Communication Technologies for developing inclusive models and solutions for the underserved and the poor. Keeping innovations and solutions as its focus, the Forum engages with social impact vehicles, both not-for-profits and for-profit organisations, Government and influencers to find and scale solutions that positive social impact and push the needle in inclusive development.

The Forum, through its national level challenge, receives more than 500 innovations applications each year from all over India. Through a rigorous and thorough filtering process, supported by Ernst and Young, approximately 250 innovations are shortlisted for two level of jury process. The NASSCOM Social Innovation Forum aspires to select the most high impact potential solutions from the nominations received from all over India. The participating innovations pass through the Initial jury, leading to the finalist entries. The finalists are thoroughly studied and discussed by a Grand jury. The jury members actively participate in the scoring and analysis, factoring in thematic criteria and guidelines suggested by NSIF.

The shortlisting and final sessions by both the juries were not limited just to the selection process. NSIF strived to make it a platform to discuss emerging trends, ideas and models that have done well, in India and globally, as well as those that are in the horizon and need to be observed in the coming years.

The Initial jury consisted of Ashish Garg, Founder and CEO – Discover Tomorrow, Dhimant Parekh, Founder and Social Media Head - The Better India, K Chadrasekar, CEO and Executive board member - Forus, Kunal Kashyap, Executive Director - TIE Bangalore, Madan Padak, Co-founder, MD and CEO - Head Held High Services, Meenu Bhambani, Head, CSR activities - Mphasis, Prashant Sankaran, Director - Interweave Consulting, Susmita Malik, AVP and Global CSR Leader - Genpact, Abhishek Humbad, Founder - NextGen.

The Grand jury consisted of Aruna Sundararajan, IAS, Secretary - Ministry of Steel, Amit Agarwal, SVP - Learning & Development - Genpact, Arun Seth, Non-Executive Chairman - Alcatel-Lucent (India), BVR Mohan Reddy, Founder and Executive Chairman – Cyient, Ganesh Ayyar, CEO and Executive Director – Mphasis, Dr. Ganesh Natarajan, Vice Chairman and CEO – Zensar and Chairman – NASSCOM Foundation, Neeraj Aggarwal, Managing Director, Boston Consulting Group (India), R Sukumar, Editor - Mint and Sandhya Vasudevan, MD and CEO, Deutsche Bank (India).

The following section highlights some of the inputs from the jury members captured during these sessions and in individual interactions with them.
I was part of the Initial Jury last year as well. Compared with last year, I feel the quality of applications was far superior. What also helped was the categorization of innovations in thematic areas and the design of the questionnaire which captured the exact information and possible impact of innovations. The innovations especially in the area of disability inclusion and early intervention in disability were remarkable and showed enough promise for creating large scale impact. Lot of innovators had spent many years in the grassroots to understand the problems and engaged with technocrats to work for resolving social problems.

My advice to innovators would be to involve the community in understanding the issues deeply, bridge the divide between technology professionals and community’s problems so that sustainable and scalable solutions could be created.

As a platform, NSIF has already got traction with social innovators. I am aware how coveted it has become with a lot of young innovators. NSIF now needs to go beyond recognition of these social innovations and enhance its reach even further.

**Dr. Meenu Bhambani**
VP and Head, Corporate Social Responsibility - Mphasis

The wide mix of social innovations that I’ve seen as part of the jury has been phenomenal. It’s heartening to see so many entrepreneurs taking real-world problems head-on and thus improving the lives of our communities. I personally believe that technology holds the key for all these solutions to achieve large scale and hence large impact. Entrepreneurs must build solutions in such a way that one can deploy technology to achieve massive scale quickly. Technology should be viewed as an enabler, as a tool that not only help one’s ideas travel far but also helps create replicable solutions for different demographics.

**Dhimant Parekh**
Founder and Social Media Head - The Better India

It was great to review the business models of so many technology innovators and entrepreneurs who are targeting their solutions towards socially relevant markets and consumers. This is a tough market because paying capacity can be low - but access to mobiles and the Internet is starting to make this a very level playing field.

One of the big challenges is to build a very innovative, new-to-the-world kind of idea, but then have to wait for several years for the market to become ready to adopt. That kind of innovation needs very deep resources. Without access to such deep resources, it becomes critical that social innovators differentiate between existing gaps and long term innovation gaps - and create a strategy where they meet both those in the short and long term - with the initial focus being on a ready market that can potentially pay and move towards financial sustainability as an enterprise.

Technology is a critical ingredient in ensuring that life changing products and solutions reach people who need it the most - for e.g. Getting information about Govt Schemes to communities that very poor and lack access, or creating communication tools for people with visual disabilities, or market linkages for remote rural farmers without road connectivity etc. - essentially solving problems with the underserved market as a focus. Access to mobile phones, convergence of Internet, mobility, cloud and data allows for major innovations in these market segments and is also a great contributor to inclusive development across all these communities and users. Accelerating the impact of such solutions is the focus of NSIF’s tech for good program.

**Parvathi Menon**
Founder and CEO - Innovation Alchemy
It is heartening to see young minds working on solutions to solve issues that act as impediments to the country’s development. It strengthens our belief in the fact that India’s youth is our capital and we must invest in their future.

Many of the innovations that were a part of NSIF 2016 were breakthrough ideas which have the potential to transform the development landscape. With guidance and support from organizations like NASSCOM Foundation and mentors from the industry, these solutions could create change and contribute to efforts in areas such as Skill Development. The daunting targets for skilling the youth of the country to ensure adequate human capital for employers can only be met if technology innovations are deployed for large scale implementation of programs. It is imperative that we use new technologies such as Mobile and Cloud for this.

NSIF has identified some great innovations this year. We hope these innovations can be scaled to achieve their true potential.

**Susmita Malik**  
AVP and Global CSR Leader - Genpact

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It was a great experience to be part of the jury team evaluating technology led social innovations. The innovations included some frugal and some path breaking concepts. The variety I could see was truly overwhelming. The passion and drive of most of the entrepreneurs to solve some of India’s major problems using technology was evident. I am very confident some these innovations will become a reality and way of life in the next few years and will drive India’s future.

I had the opportunity to review some of the solutions in the area of ehealth, which I strongly believe will be the future way of addressing healthcare problems, given the skewed doctor to patient ratio in India. Some of these solutions are very comprehensive, highly scalable, cost effective and addresses the basic needs in healthcare.

**K Chandrasekhar**  
CEO and Executive board member - Forus

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At the outset, I must congratulate Nasscom Social Innovation Forum for conducting a very rigorous exercise in collating some of the most exciting social innovation projects seen so far. The painstaking attention to every detail was easily visible.

Each innovation adhered to a basic formulae of relevance - being applicable to the bottom the pyramid, easily replicable, cost effective and making wide spread positive impact to the social fabric of the community or region.

The jury had a tough time arriving at a consensus on the finalists as each enterprise seemed to address more than one area of critical relevance. Never before, perhaps, has a jury had to work so hard to defend their marking.

Tech is already ubiquitous and will become more so in the near term, like air and water. Tech applies itself seamlessly to address critical pain points for people at the bottom of the pyramid. That is where it is most needed. Tech enables us to be creative and resourceful with solutions, even as it allows us to create individual and collaborative options simultaneously.

**Ashish Garg**  
Founder and CEO – Discover Tomorrow
There is nothing as powerful as an innovative idea in the hands of a socially inclined entrepreneur. I had an enriching experience taking part in the jury to gauge the social innovation projects through Tech for Good.

With the significant progress in technology, social entrepreneurship is breaking into the mainstream, delivering progress to marginalized communities. My advice to social entrepreneurs is to foster solid business practices and plans for scaling their business as if theirs were a for-profit venture. In order to impact the large masses of needy in India, even NGOs and socially driven ventures must adopt viable and scalable business practices.

The potential for Technology to foster inclusive growth and create positive social impact is immense. From digital land records to do away with documents, connected classrooms to deliver quality education, making government schemes accessible to remote towns, and affordable healthcare access to underserved, technology has already impacted India in a positive manner and will continue to do so with initiative from NGOs and for-profit social ventures. The impact ecosystem like associations, funding institutions, government, large corporates etc. have a key role to play as mentors and guides to enable social entrepreneurs to succeed!

Kunal Kashyap  
Executive Director - TiE Bangalore

Being part of the jury was exciting as well as personally enriching. It is very heartening to see the entrepreneurial wave sweeping India now including technology ideas that touch the social sector. While the innovativeness, passion and the commitment from the teams were very high, one felt this initiatives needs a lot of mentoring, and strong ecosystem support like the one NSIF is creating, for it to evolve and realise its potential.

While they have chosen to craft solutions for, and to create impact in the social sector, they should keep in mind that the key word is “entrepreneurship”, as opposed to charity, and the core entrepreneurial values related to risk, results, financial sustainability, creating value etc. needs an equal focus as much as the innovation and the solution.

At the basic level, the quality of technology to facilitate scale, reach and economizing of solutions make it a great leverage for bridging the divide. On top of this, when a layer of multi-disciplinary approach and innovation is applied, as we have seen in the case of quite a few solutions in the NSIF process, it becomes a very powerful force that can create breakthrough impact at very significant levels.

Prashant Sankaran  
Director - Interweave Consulting

From voice-controlled wheel chair to Intelligent Eyes, from an app for rights & Govt. schemes to Blood Collectives, from women’s safety to education analytics – it was a wide range of ideas and plans that I got to review as a part of the jury! Two things stand out for me as I went through the applications – the boldness with which the problems were attacked, and the innovative approaches to solving these problems by leveraging technology. My advice to the social innovators is to start from the users, by putting yourselves into their shoes – only then will you be able to understand the core issues to be solved and design appropriate solutions. Technology plays a pivotal role in this design as it helps deliver these solutions effectively, efficiently and at scale!

Madan Padaki  
Co-founder, MD and CEO - Head Held High Services
“It is extremely imp for the country that you have sane voices who are making inclusiveness happen. I think we are at the beginning of a great journey, but if that journey be seen through to its logical conclusion, we will really see this country evolved and transformed”

Dr. Ganesh Natarajan,
Chairman, NASSCOM Foundation

“The biggest thing is really how people can leverage technology to lead better lives. We are very keen to support skilling related innovations”

Amit Agarwal,
Senior Vice President – Learning and Development, Genpact

“The youth of India is ready to take on the challenge, is ready to disrupt the world in a positive manner. I am thrilled to be associated with this initiative in the education side.”

Ganesh Ayyar,
CEO & Executive Director, Mphasis

“I am deeply excited about what social innovation can do, and that combined with Digital India and Make in India can be a very powerful force.”

Neeraj Aggarwal,
Managing Director, BCG India

“These applications should have perceptible benefits to the citizens, they should be scalable and we should see the benefits percolating to different sectors.”

BVR Mohan Reddy,
Founder and Executive Chairman, Cyient

“There are some really breakthrough ideas out there which are fantastic. If those come to fruition in terms of size, scale and impact, I think it will be truly breakthrough innovations.”

Sandhya Vasudevan,
Managing Director & COO, Deutsche Bank Group, India
Speakers and Participants at NASSCOM Foundation’s flagship conference—The CSR Leadership Conference 2016. NSIF Innovators showcased at the exhibition and presented their innovations at panel discussions and pitch sessions.
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NASSCOM Foundation is a non-profit organization registered under the Indian Trust Act, 1882. Our vision is to leverage Information and Communication Technologies (ICT) for empowering and transforming the lives of the underserved.

The Foundation has two functional program areas – Firstly, fostering ICT for development, by bringing game changing innovations to the forefront and unlocking their potential, thus bridging the digital divide; and secondly, encouraging NASSCOM member companies to drive lasting change through Corporate Social Responsibility initiatives, while promoting and assisting them every step of the way.

NASSCOM Foundation enjoys a unique positioning with its access to the decision makers in the government, the leadership from across the industry and partnership with a vast network of over 4000 Non-Profits working towards the betterment of India. The Foundation therefore, can act as the one joining force, abridging the gaps between these three fundamental development agents of the society and driving them together towards creating a progressive and truly inclusive India.

The Foundation is engaged in a number of multifaceted and leverage on the power of partnerships with the implementing agencies, industry, government bodies and people at the grassroots level. In line with the theme of ‘Technology for Good’, NASSCOM foundation has developed four key programs.

Skills Initiative
NASSCOM Foundation’s Skills Initiative aims to increase employability by providing access to training curriculum and content and to encourage micro-entrepreneurship amongst underserved communities by providing investments.

National Digital Literacy Mission (NDLM)
National Digital Literacy Mission is a platform of digital literacy awareness aligned to the Indian Government’s vision of making one person in each household in the country digitally literate by 2020.

Disability Initiative
The Disability Initiative encourages inclusion in the IT-BPM industry by sensitizing the sector about accessibility (barrier free workplace and assistive technology) and employment.

NASSCOM Social Innovation Forum
The NASSCOM Social Innovation Forum aims to enable and strengthen innovations that empower and impact lives at the bottom of the pyramid through the use of technology.

NASSCOM Foundation also supports the technology needs of Indian NGOs with software and hardware donation programs. More details are available on the website – www.nasscomfoundation.org